

Oracle® Revenue Management and Billing

Version 2.8.0.0.0

Installation Guide

Revision 16.2

F17820-01

June, 2019



Oracle Revenue Management and Billing Installation Guide

F17820-01

Copyright Notice

Copyright © 2019, Oracle and/or its affiliates. All rights reserved.

Trademark Notice

Oracle, Java, JD Edwards, PeopleSoft, and Siebel are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

License Restrictions Warranty/Consequential Damages Disclaimer

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure, and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or de-compilation of this software, unless required by law for interoperability, is prohibited.

Warranty Disclaimer

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

Restricted Rights Notice

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS

Oracle programs, including any operating system, integrated software, any programs installed on the hardware, documentation, and/or technical data delivered to U.S. Government end users are “commercial computer software” or “commercial technical data” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, documentation, and/or technical data shall be subject to license terms and restrictions as mentioned in Oracle License Agreement, and to the extent applicable, the additional rights set forth in FAR 52.227-19, Commercial Computer Software--Restricted Rights (June 1987). No other rights are granted to the U.S. Government.

Hazardous Applications Notice

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

Third Party Content, Products, and Services Disclaimer

This software and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third party content, products, or services.

Preface

About This Document

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

Intended Audience

This document is intended for the following audience:

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

The intended audience should have:

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

Organization of the Document

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

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

Section No.	Section Name	Description
Section 7	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 8	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 V2.8.0.0.0 Bug Fixes	Lists the bugs fixed in Oracle Revenue Management and Billing Version 2.8.0.0.0.
Appendix C	License and Copyright Notices	Lists all notices with reference to usage of third party products.

Related Documents

You can refer to the following documents for more information:

Document	Description
<i>Oracle Revenue Management and Billing Version 2.8.0.0.0 Release Notes</i>	Provides a brief description about the new features, enhancements, UI and database level changes, supported platforms, framework upgrade, supported upgrades, and technology upgrade made in this release. It also highlights the discontinued features, bug fixes, and known issues in this release.
<i>Oracle Revenue Management and Billing Quick Installation Guide</i>	Provides high-level information on how to install the Oracle Revenue Management and Billing (ORMB) application and selected additional software.
<i>Oracle Revenue Management and Billing Database Administrator's Guide</i>	Provides information about the Oracle Database Server and Client required for installing the Oracle Revenue Management and Billing database. It explains how to install database with and without demo data. It provides database configuration guidelines including recommended settings for the Oracle Exadata Database machine.
<i>Oracle Revenue Management and Billing Server Administration Guide</i>	Explains the Oracle Revenue Management and Billing (ORMB) architecture and technical know-how required for configuring and using the ORMB application. It explains how to configure and deploy web and business application servers. In addition, it explains how to monitor client machines, web and/or business application servers, and database connections.

Document	Description
<i>Oracle Revenue Management and Billing Security Guide</i>	Lists the security features available in the Oracle Revenue Management and Billing application. It explains how to configure security for the Oracle Revenue Management and Billing application using the default security features.

Conventions

The following conventions are used across the document:

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

Change Log

Revision	Last Update	Updated Section	Comments
16.1	22-Aug-2019	Section 5.5.1: Setting Up and Using the Additional JAR Directory	Updated Information
16.2	01-Jul-2021	Section 7.3: Post Installation Tasks	Added Information

Contents

1. Overview.....	1
1.1 Installation Overview.....	1
2. Application Architecture Overview	2
2.1 Application Architecture.....	2
2.1.1 Tier 1: Desktop/Client, or Presentation Tier	2
2.1.2 Tier 2: Web Application / Business Application Server, or Business Logic Tier	2
2.1.3 Tier 3: Database, or Persistence Tier	2
3. Supported Platforms and Hardware Requirements	3
3.1 Software and Hardware Considerations	3
3.2 Requirements by Tier	3
3.2.1 Tier 1, Desktop: Software and Hardware Requirements	4
3.2.2 Tier 2, Web/Business Application Server: Software and Hardware Requirements.....	4
3.2.3 Tier 3, Database Server: Software and Hardware Requirements.....	5
3.3 Supported Platforms	5
3.3.1 Operating Systems and Application Servers	6
3.3.2 Oracle Database Servers	7
3.3.3 Oracle WebLogic Server Information.....	7
3.4 Support for Software Patches and Upgrades	8
4. Planning the Installation	9
4.1 Installation and Configuration Overview.....	9
4.2 Before You Install	11
4.2.1 WebLogic Native Installation	11
4.2.2 Application Server Clustering.....	11
4.2.3 Directory Names	11
4.3 Installation Checklist.....	11
4.4 Installation and Configuration Worksheets.....	12
4.5 Installation Menu Functionality Overview	12
4.5.1 Installation Menu Functionality Details	12
4.5.2 Encryption Methods	13
4.5.3 Environment Installation Options.....	13
4.5.4 Environment Configuration	15
4.5.5 Advanced Menu Options	19
5. Installing Application Server Prerequisite Software	24
5.1 AIX 7.2 Application Server	24
5.1.1 Supported Application Servers	24
5.1.2 Web/Application Server Tier	24
5.2 Oracle Linux 6.5+ or 7.x and Red Hat Enterprise Linux 6.5+ or 7.x Application Server	27

5.2.1	Supported Application Servers	27
5.2.2	Web/Application Server Tier	28
5.3	Oracle Solaris 11 Application Server	31
5.3.1	Supported Application Servers	31
5.3.2	Web/Application Server Tier	31
5.4	Windows 2012 Application Server	34
5.4.1	Supported Application Servers	34
5.4.2	Web/Application Server Tier	34
5.5	Additional Prerequisite Software Information	36
5.5.1	Setting Up and Using the Additional JAR Directory	36
6.	Installing the Application Server Component of Oracle Utilities Application Framework	38
6.1	Installation Overview.....	38
6.2	Pre-Installation Tasks.....	38
6.2.1	Hardware and Software Version Prerequisites.....	38
6.2.2	Database Installation	38
6.2.3	Installation Prerequisites	39
6.2.4	Copying and Decompressing Install Media.....	39
6.2.5	Set Permissions for the CISTAB File in Linux.....	40
6.3	Installing Oracle Utilities Application Framework Version 4.3.0.6.0.....	40
6.4	Post Installation Tasks	44
6.4.1	Installing Rollup Pack for OUAUF Version 4.3.0.6.0	44
7.	Installing the Application Server Component of Oracle Revenue Management and Billing.....	45
7.1	Pre-installation Tasks.....	45
7.1.1	Copying and Decompressing Install Media.....	45
7.2	Installing the Application.....	46
7.3	Post Installation Tasks	47
7.3.1	Applying the 29889611 Patch	47
7.3.2	Creating the billView Directory.....	48
7.4	Installing User Documentation.....	48
7.5	Operating the Application	48
7.6	Installing Service Packs and Patches	49
8.	Additional Tasks.....	50
8.1	Importing Self-Signed Certificates.....	50
8.2	Customizing Configuration Files	51
8.3	Centralized Properties Customization.....	51
8.4	Generating the Application Viewer	53
8.5	Building Javadocs Indexes	54
8.6	Configuring the Environment for Batch Processing	54
8.7	Customizing the Logo	54

8.8	Deploying Inbound Web Services (IWS)	54
8.9	Domain Templates.....	55
8.10	Invoking Custom Batch Notifier.....	55
Appendix A :	Application Framework Prerequisite Patches	56
Appendix B :	ORMB V2.8.0.0.0 Bug Fixes	57
Appendix C :	License and Copyright Notices.....	58
C.1	Third-Party Products.....	58
C.1.1	Notice Concerning Usage of ANTLR	58
C.1.2	Notice Concerning Usage of Apache Software	59
C.1.3	Notice Concerning Usage of ASM	63
C.1.4	Notice Concerning Usage of CodeMirror.....	64
C.1.5	Notice Concerning Usage of Concurrent	64
C.1.6	Notice Concerning Usage of DOM4J.....	64
C.1.7	Notice Concerning Usage of FullCalendar	65
C.1.8	Notice Concerning Usage of Graph Builder	65
C.1.9	Notice Concerning Usage of International Components for Unicode (ICU4J).....	66
C.1.10	Notice Concerning Usage of Jaxen.....	66
C.1.11	Notice Concerning Usage of JfreeChart Library.....	67
C.1.12	Notice Concerning Usage of JQuery	70
C.1.13	Notice Concerning Usage of JQuery UI	70
C.1.14	Notice Concerning Usage of Knockout	71
C.1.15	Notice Concerning Usage of Microsoft .NET.....	71
C.1.16	Notice Concerning Usage of Moment.js	75
C.1.17	Notice Concerning Usage of SLF4J	75
C.1.18	Notice Concerning Usage of Staxmate	75
C.1.19	Notice Concerning Usage of Swagger-UI	76
C.1.20	Notice Concerning Usage of XMLPULL.....	81
C.1.21	Notice Concerning Usage of XStream	81

1. Overview

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

1.1 Installation Overview

Installing Oracle Revenue Management and Billing involves the following steps:

1. Review the different tiers of the application architecture as described in the [Application Architecture Overview](#) section.
2. Understand the hardware requirements for installing the application and the supported platforms for the application and database servers as described in the [Supported Platforms and Hardware Requirements](#) section.

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

3. Install the database as described in *Oracle Revenue Management and Billing Database Administrator's Guide*.
4. Plan your installation as described in the [Planning the Installation](#) section.
5. Install all required third-party software as described in the [Installing Application Server Prerequisite Software](#) section. The required software is listed for each supported combination of operating system and application server.
6. Install the framework for the application as described in the [Installing the Application Server Component of Oracle Utilities Application Framework](#) section.
7. Install Oracle Revenue Management and Billing as described in the [Installing the Application Server Component of Oracle Revenue Management and Billing](#) section.
8. Follow the installation guidelines described in the [Additional Tasks](#) section.

2. Application Architecture Overview

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

2.1 Application Architecture

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

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

2.1.1 Tier 1: Desktop/Client, or Presentation Tier

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

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

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

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

2.1.3 Tier 3: Database, or Persistence Tier

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

3. Supported Platforms and Hardware Requirements

This section gives an overview of the tiers on which the product is implemented, and shows each of the operating system/server combinations on which the product is supported. 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 Oracle Revenue Management and Billing?
 - Web/application/database on the same physical server
 - Web/application on one server and database on separate server
 - Each component on its own server

For detailed descriptions of various deployment architecture choices that may aid in planning, please see *Oracle Utilities Application Framework Architecture Guidelines* available on [My Oracle Support](#) (Article ID 807068.1).

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

3.2 Requirements by Tier

The application is deployed on multiple Tiers:

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

3.2.1 Tier 1, Desktop: Software and Hardware Requirements

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

Web Browser Requirements

The following operating system and web browser software are supported:

- Windows 7, 8.x³, 10 (64-bit) with Internet Explorer 11.x³ (not in compatibility mode)

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

Please refer the [Supported Platforms](#) section to determine which web application servers can be used with the operating system that will be hosting this tier.

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

Memory Requirements

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

Disk Space Requirements

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

Location	Size	Usage
\$SPLEBASE	11 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.

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.

³ Here, **x** represents the vendor supported version.

Location	Size	Usage
\$\$PLOUTPUT	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	14 GB minimum	This location is where the Oracle database data files are stored. The size of this space should be based on the requirements of the production environment. For an initial or demo database install 4 GB should be sufficient.

3.2.3 Tier 3, Database Server: Software and Hardware Requirements

See the [Supported Platforms](#) section for supported database servers.

3.3 Supported Platforms

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

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

3.3.1 Operating Systems and Application Servers

The following table lists the operating system and application server combinations on which Oracle Revenue Management and Billing Version 2.8.0.0.0 is supported:

Operating System and Web Browser (Client)	Operating System (Server)	Chipset	Web Application Server	Database Server
Windows 7, 8.x ⁴ 10 (64-bit) with Internet Explorer 11.x ⁵	AIX 7.2 TLx ⁵ (64-bit)	POWER 64-bit	WebLogic 12.2.1.3+ (64-bit)	Oracle Database Server 12.1.0.2+ Oracle Database Server 12.2.0.x ⁵
	Oracle Linux 6.5+ and 7.x ⁵ (64-bit)	x86_64	WebLogic 12.2.1.3+ (64-bit)	Oracle Database Server 12.1.0.2+ Oracle Database Server 12.2.0.x ⁵
	Oracle Solaris 11.x ⁵	SPARC 64-bit	WebLogic 12.2.1.3+ (64-bit)	Oracle Database Server 12.1.0.2+ Oracle Database Server 12.2.0.x ⁵
	Red Hat Enterprise Linux ⁶ 6.5+ and 7.x ⁵ (64-bit)	x86_64	WebLogic 12.2.1.3+ (64-bit)	Oracle Database Server 12.1.0.2+ Oracle Database Server 12.2.0.x ⁵
	Windows Server 2012 R2 (64-bit)	x86_64	WebLogic 12.2.1.3+ (64-bit)	Oracle Database Server 12.1.0.2+ Oracle Database Server 12.2.0.x ⁵

⁴ Here, **x** represents the vendor supported version.

⁵ Here, **x** represents the vendor supported version.

⁶ Oracle Revenue Management and Billing is tested and certified on Oracle Linux 6.5+ and 7.x. OracleLinux is 100% userspace-compatible with Red Hat Enterprise Linux, and therefore Oracle Revenue Management and Billing is supported on Red Hat Enterprise Linux.

Note:

Oracle Corporation distributes Oracle Linux with the following two kernels:

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

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

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

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

3.3.2 Oracle Database Servers

Oracle Revenue Management and Billing Version 2.8.0.0.0 is supported with Oracle Database Server 12.1.0.2+ and 12.2.0.x⁷ on all operating systems listed above. The following Oracle Database Server Editions are supported:

- Oracle Database Server Enterprise Edition

Note: Oracle Database Enterprise Edition with the Advanced Compression and Partitioning options is strongly recommended in all situations.

Oracle Database Client 12.1.0.2 is required for Oracle Database Server 12.1.0.2+ and 12.2.0.x⁷.

3.3.3 Oracle WebLogic Server Information

You must download and install WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.3+.

Note:

You need to apply the **WLS PATCH SET UPDATE 12.2.1.3.181016** patch (Patch Number: 28298734) after installing Oracle WebLogic Server.

While creating a domain, select the **Oracle Restricted JRF - 12.2.1 [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension - 12.2.1 [wlserver]** option is selected automatically.

⁷ Here, **x** represents the vendor supported version.

3.4 Support for Software Patches and Upgrades

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

If it is necessary to apply an upgrade, please do so in a test environment that is running on the same platform as your production environment prior to updating the Oracle Revenue Management and Billing production environment.

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

Always contact Oracle Revenue Management and Billing support prior to applying vendor updates that do not guarantee backward compatibility.

4. Planning the Installation

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

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

4.1 Installation and Configuration Overview

The following diagram provides an overview of the steps that need to be taken to install and configure Oracle Revenue Management and Billing:

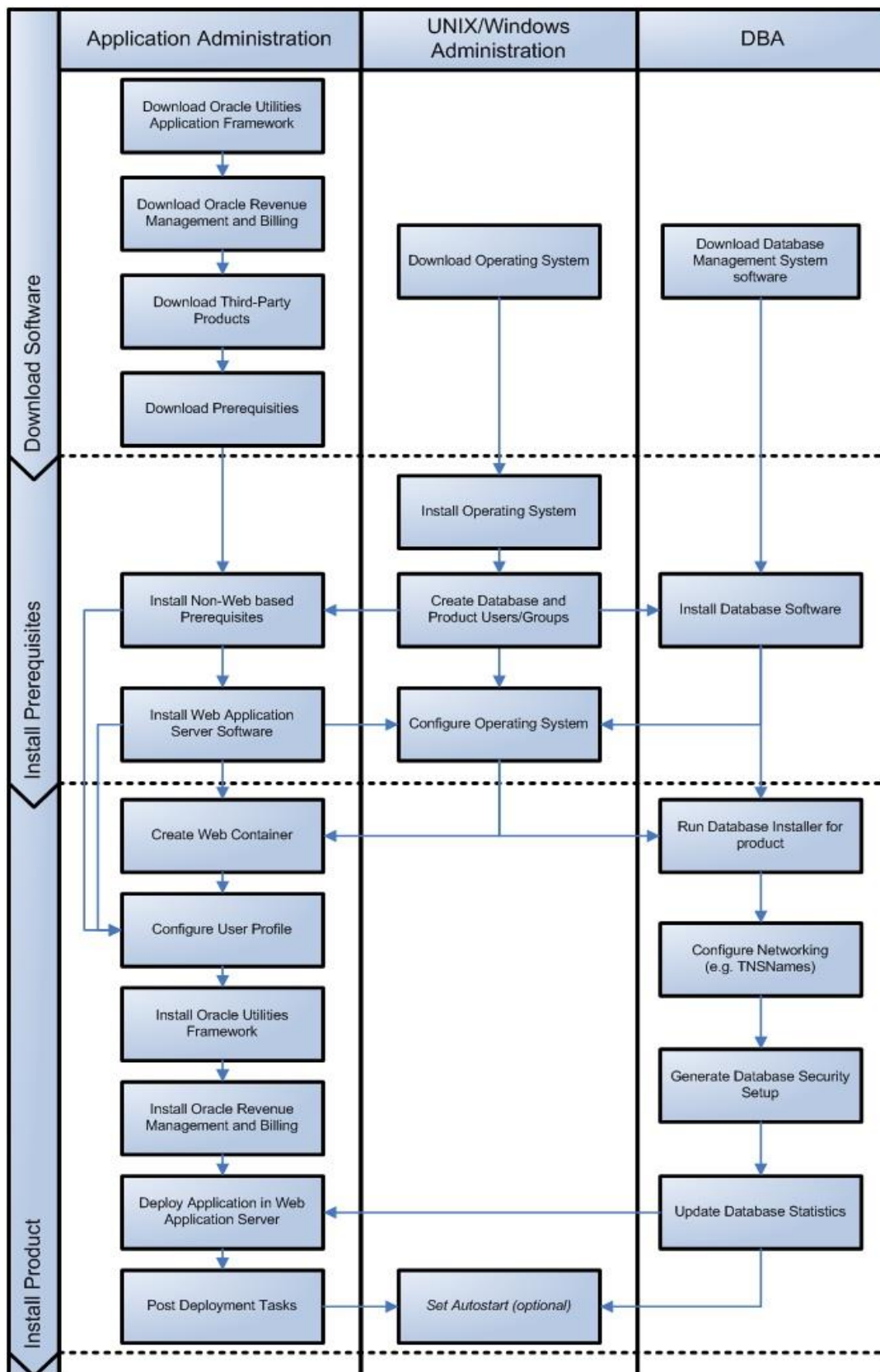


Figure 1: ORMB Installation and Configuration Steps

4.2 Before You Install

Refer to [My Oracle Support](#) for up-to-date additional information on installing Oracle Revenue Management and Billing.

4.2.1 WebLogic Native Installation

With Oracle Utilities Application Framework V4.3.0.6.0, a WebLogic native installation is required. Refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Doc ID 2413918.1)* whitepaper on [My Oracle Support](#).

4.2.2 Application Server Clustering

If you are considering application server clustering, refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Doc ID 2413918.1)* whitepaper on [My Oracle Support](#) for additional information.

Additional information about WebLogic clustering can be found at:

http://docs.oracle.com/cd/E17904_01/web.1111/e13709/toc.htm

4.2.3 Directory Names

Directory cannot contain whitespace characters.

4.3 Installation Checklist

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

1. Install the database as described in *Oracle Revenue Management and Billing Database Administrator's Guide*.
2. Create Group/User ID.
3. Install prerequisite software (for complete details about installing and configuring the prerequisite third-party software for your specific platform, see the [Installing Application Server Prerequisite Software](#) section):
 - Oracle Database Client 12.1.0.2
 - Java 8 Update 144 or Later
 - Hibernate 4.1.0
4. Install Oracle WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.3+.
5. Verify that the software is installed.
6. Set up environment variables.
7. Install Oracle Utilities Application Framework.
8. Install the rollup pack for Oracle Utilities Application Framework (prerequisite single fixes for ORMB).
9. Install Oracle Revenue Management and Billing.
10. Deploy the Oracle Revenue Management and Billing application.
11. Complete the post installation tasks.

12. Optional third-party product integration (such as Reporting tools).

4.4 Installation and Configuration Worksheets

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

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

4.5 Installation Menu Functionality Overview

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

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

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

Note:

When working with the menu you will see the following:

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

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

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

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

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

4.5.1 Installation Menu Functionality Details

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

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

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

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

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

The following prompt 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.

4.5.2 Encryption Methods

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. Further information on OUAF encryption can be found in the [KeyStore Options](#) section.

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

4.5.3 Environment Installation Options

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

AIX, Linux:

```
$SPLEBASE/bin/configureEnv.sh -i
```

Windows:

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

The environment installation options are categorized into the following menus:

- Environment ID, Roles, Third Party Software Configuration
- Keystore Options
- Environment Installation Options

4.5.3.1 Environment ID, Roles, Third Party Software Configuration

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

Menu Option	Corresponding Parameter	Customer Install Value
Environment ID	ENVIRONMENT_ID	
Server Roles	SERVER_ROLES	
Oracle Client Home Directory	ORACLE_CLIENT_HOME	
Web Java Home Directory	JAVA_HOME	
Hibernate JAR Directory	HIBERNATE_JAR_DIR	
ONS JAR Directory ⁸	ONS_JAR_DIR	
Web Application Server Home Directory	WEB_SERVER_HOME	
Additional JAR Directory	WLTHINT3CLIENT_JAR_DIR	
Note: For more information, see the Setting Up and Using the Additional JAR Directory section.		

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

4.5.3.2 Keystore Options

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

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

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

The following table lists and describes the keystore menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Import Keystore Directory	KS_IMPORT_KEYSTORE_FOLDER	
Store Type	KS_STORETYPE	
Alias	KS_ALIAS	
Alias Key Algorithm	KS_ALIAS_KEYALG	

⁸ In order to activate the RAC FCF, the application needs the external `ons.jar` file. This `ons.jar` is located at `$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` file.

Menu Option	Corresponding Parameter	Customer Install Value
Alias Key Size	KS_ALIAS_KEYSIZE	
HMAC Alias	KS_HMAC_ALIAS	
Padding	KS_PADDING	
Mode	KS_MODE	

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

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

4.5.3.3 Environment Installation Options

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

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

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

4.5.4 Environment Configuration

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

AIX, Linux:

```
$SPLEBASE/bin/configureEnv.sh
```

Windows:

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

The environment configuration options are categorized into the following menus:

- Environment Description
- Business Application Server Configuration
- Web Application Server Configuration
- Database Configuration
- General Configuration Options
- OUAF TrustStore Options

4.5.4.1 Environment Description

The following table lists and describes the environment menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Environment Description	DESC	

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

4.5.4.2 Business Application Server Configuration

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

Menu Option	Corresponding Parameter	Customer Install Value
Business Server Host	BSN_WLHOST	
Business Server Application Name	BSN_APP	
MPL Admin Port Number	MPLADMINPORT	
MPL Automatic startup	MPLSTART	

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

4.5.4.3 Web Application Server Configuration

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

Menu Option	Corresponding Parameter	Customer Install Value
Web Server Host	WEB_WLHOST	
WebLogic SSL Port Number	WEB_WLSSLPORT	
WebLogic Console Port Number	WLS_ADMIN_PORT	
Web Context Root	WEB_CONTEXT_ROOT	
WebLogic JNDI User ID	WEB_WLSYSUSER	
WebLogic JNDI Password	WEB_WLSYSPASS	
WebLogic Server Name	WEB_WLS_SVRNAME	
Web Server Application Name	WEB_APP	
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	
Enable The Unsecured Health Check Service	WEB_ENABLE_HEALTHCHECK	

Menu Option	Corresponding Parameter	Customer Install Value
MDB RunAs User ID	WEB_IWS_MDB_RUNAS_USER	
Super User Ids	WEB_IWS_SUPER_USERS	

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

4.5.4.4 Database Configuration

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

Menu Option	Corresponding Parameter	Customer Install Value
Application Server Database User ID	DBUSER	
Application Server Database Password	DBPASS	
MPL Database User ID	MPL_DBUSER	
MPL Database Password	MPL_DBPASS	
XAI Database User ID	XAI_DBUSER	
XAI Database Password	XAI_DBPASS	
Batch Database User ID	BATCH_DBUSER	
Batch Database Password	BATCH_DBPASS	
Web JDBC DataSource Name	JDBC_NAME	
Database Name	DBNAME	
Database Server	DBSERVER	
Database Port	DBPORT	
ONS Server Configuration	ONSCONFIG	
Database Override Connection String	DB_OVERRIDE_CONNECTION	
Character Based Database	CHAR_BASED_DB	
Oracle Client Character Set NLS_LANG	NLS_LANG	

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

Note:

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

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

>> load the compatible keystore into the environment;

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

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

4.5.4.5 General Configuration Options

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

Menu Option	Corresponding Parameter	Customer Install Value
Batch RMI Port	BATCH_RMI_PORT	
RMI Port number for JMX Business	BSN_JMX_RMI_PORT_PERFORMANC E	
RMI Port number for JMX Web	WEB_JMX_RMI_PORT_PERFORMANC E	
JMX Enablement System User ID	BSN_JMX_SYSUSER	
JMX Enablement System Password	BSN_JMX_SYSPASS	
Coherence Cluster Name	COHERENCE_CLUSTER_NAME	
Coherence Cluster Address	COHERENCE_CLUSTER_ADDRESS	
Coherence Cluster Port	COHERENCE_CLUSTER_PORT	
Coherence Cluster Mode	COHERENCE_CLUSTER_MODE	

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

4.5.4.6 OUAF TrustStore Options

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

Menu Option	Corresponding Parameter	Customer Value Install
Import TrustStore Directory	TS_IMPORT_KEYSTORE_FOLDER	
Store Type	TS_STORETYPE	
Alias	TS_ALIAS	
Alias Key Algorithm	TS_ALIAS_KEYALG	
Alias Key Size	TS_ALIAS_KEYSIZE	
HMAC Alias	TS_HMAC_ALIAS	

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

4.5.5 Advanced Menu Options

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

AIX, Linux:

```
$SPLEBASE/bin/configureEnv.sh -a
```

Windows:

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

The advanced menu options are categorized into the following menus:

- Advanced Environment Miscellaneous Configuration
- Advanced Environment Memory Configuration
- Advanced Web Application Configuration
- WebLogic Diagnostics
- URI, File and URL Related Options
- Mobile Security Configuration

4.5.5.1 Advanced Environment Miscellaneous Configuration

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

Menu Option	Corresponding Parameter	Customer Value Install
OUAF DBMS Scheduler User	OUAF_DBMS_SCHEDULER_USER	
Online JVM Batch Server Enabled	BATCHENABLED	
Online JVM Batch Number of Threads	BATCHTHREADS	

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

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

4.5.5.2 Advanced Environment Memory Configuration

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

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

Menu Option	Corresponding Parameter	Customer Install Value
Thread Pool Worker Additional Options	BATCH_MEMORY_ADDITIONAL_OPT	

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

4.5.5.3 Advanced Web Application Configuration

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

Menu Option	Corresponding Parameter	Customer Install Value
Web Application Cache Settings	WEB_L2_CACHE_MODE	
Web Server Port Number	WEB_WLPORT	
CSRF Protection For REST Services	CSRF_PROTECTION	
OWSM Protection For REST Services	OWSM_PROTECTION_FOR_REST_SERVICES	
Domain Home Location	WLS_DOMAIN_HOME	
Batch Cluster URL	WEB_BATCH_CLUSTER_URL	
Strip HTML Comments	STRIP_HTML_COMMENTS	
Authentication Login Page Type	WEB_WLAUTHMETHOD	
Web Form Login Page	WEB_FORM_LOGIN_PAGE	
Web Form Login Error Page	WEB_FORM_LOGIN_ERROR_PAGE	
Application Viewer Form Login Page	WEB_APPVIEWER_FORM_LOGIN_PAGE	
Application Viewer Form Login Error Page	WEB_APPVIEWER_FORM_LOGIN_ERROR_PAGE	
Help Form Login Page	WEB_HELP_FORM_LOGIN_PAGE	
Help Form Login Error Page	WEB_HELP_FORM_LOGIN_ERROR_PAGE	
Web Security Role	WEB_SECURITY_NAME	
Web Principal Name	WEB_PRINCIPAL_NAME	
Application Viewer Security Role	WEB_APPVIEWER_ROLE_NAME	
Application Viewer Principal Name	WEB_APPVIEWER_PRINCIPAL_NAME	
This is a development environment	WEB_ISDEVELOPMENT	
Preload All Pages on Startup	WEB_PRELOADALL	

Menu Option	Corresponding Parameter	Customer Install Value
Maximum Age of a Cache Entry for Text	WEB_MAXAGE	
Maximum Age of a Cache Entry for Images	WEB_MAXAGEI	
JSP Recompile Interval(s)	WEB_WLPAGECHECKSECONDS	

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

4.5.5.4 WebLogic Diagnostics

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

Menu Option	Corresponding Parameter	Customer Install Value
Diagnostic Context Enabled	WLS_DIAGNOSTIC_CONTEXT_ENABLED	

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

4.5.5.5 URI, File and URL Related Options

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

Menu Option	Corresponding Parameter	Customer Install Value
Restriction URIs Enable	CLOUD_RESTRICTION_URLS_ENABLE	
Custom SQL Security	CUSTOM_SQL_SECURITY	
White List Full Path	CLOUD_WHITE_LIST_PATH	
Custom White List Full Path	CLOUD_CUSTOM_WHITE_LIST_PATH	
Substitution Variable List File Location	CLOUD_SUBSTITUTION_VARIABLE_LIST_FILE_LOCATION	
Directory For Variable F1_CMA_FILES	CLOUD_LOCATION_F1_MIGR_ASSISTANT_FILES	
URI For Variable F1_OAUTH2_URI	CLOUD_LOCATION_F1_OAUTH2_URI	
URI For Variable F1_BASE_REST_URL	CLOUD_LOCATION_F1_BASE_REST_URL	
Consolidated Logfile Full Path	CONSOLIDATED_LOG_FILE_PATH	
Temporary File Location	TMP_FILE_LOCATION	

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

4.5.5.6 Mobile Security Configuration

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

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

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

5. Installing Application Server Prerequisite Software

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

- AIX 7.2 Application Server
- Oracle Linux 6.5+ or 7.x⁹ and Red Hat Enterprise Linux 6.5+ or 7.x⁹ Application Server
- Solaris 11 Application Server
- Windows 2012 R2 Application Server

5.1 AIX 7.2 Application Server

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

5.1.1 Supported Application Servers

Operating System	Chipsets	Application Server
AIX 7.2 TLx ⁹ (64-bit)	POWER 64-bit	WebLogic 12.2.1.3+ (64-bit)

5.1.2 Web/Application Server Tier

AIX 7.2 TLx 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 User ID	cissys	-
ORMB User Group	cisusr	-

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

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

By default, 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.

⁹ Here, x represents the vendor supported version.

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 007 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 the files within the application.
Cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than generated log files.

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

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

Oracle Database Client 12.1.0.2 - Runtime Option

Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

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

Oracle Java Development Kit Version 8.0 Update 144 or Later, 64-Bit

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

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

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

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

Hibernate 4.1.0

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

1. Create a Hibernate Third Party JAR Depot:

```
export HIBERNATE_JAR_DIR=<Hibernate Third Party JAR Depot>
```

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

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

3. Click the “4.1.0.Final” link to download the zip file.
4. Extract the contents of the zip file:

```
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.

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

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

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

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

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

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

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

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

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

7. Click the “5.2.3.Final” link to download the zip file.

8. Extract the contents of the zip file:

```
jar xvf hibernate-release-5.2.3.Final.zip
```

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

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

Oracle WebLogic Server 12.2.1.3+ (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 using Fusion Middleware Infrastructure Installer 12.2.1.3+.

Note:

You need to apply the **WLS PATCH SET UPDATE 12.2.1.3.181016** patch (Patch Number: 28298734) after installing Oracle WebLogic Server.

While creating a domain, select the **Oracle Restricted JRF - 12.2.1 [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension - 12.2.1 [wlserver]** option is selected automatically.

5.2 Oracle Linux 6.5+ or 7.x and Red Hat Enterprise Linux 6.5+ or 7.x Application Server

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

5.2.1 Supported Application Servers

Operating System	Chipsets	Application Server
Oracle Linux 6.5+ and 7.x ¹⁰ (64-bit)	x86_64	Oracle WebLogic 12.2.1.3+ (64-bit)
Red Hat Enterprise Linux 6.5+ and 7.x ¹⁰ (64-bit)	x86_64	Oracle WebLogic 12.2.1.3+ (64-bit)

¹⁰ Here, **x** represents the vendor supported version.

5.2.2 Web/Application Server Tier

Oracle Linux 6.5+ or 7.x or Red Hat Enterprise Linux 6.5+ or 7.x Operating System Running on x86_64 (64-bit) Architecture

Linux 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 User ID	<code>cissys</code>	
ORMB User Group	<code>cisusr</code>	

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

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

By default, the `cissys` user ID is the only one given access to the files installed.

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

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

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

```
set +o noclobber
```

Security Configuration

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

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 007 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 the files within the application.
cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than generated log files.

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

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

Oracle Database Client 12.1.0.2 - Runtime Option

Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

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

Oracle Java Development Kit Version 8.0 Update 144 or Later, 64-Bit

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

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

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

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

Hibernate 4.1.0

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

1. Create a Hibernate Third Party JAR Depot:

```
export HIBERNATE_JAR_DIR=<Hibernate Third Party JAR Depot>
```

2. Download the `hibernate-release-4.1.0.Final.zip` file from the following location:
<http://sourceforge.net/projects/hibernate/files/hibernate4/>
3. Click the “4.1.0.Final” link to download the zip file.
4. Extract the contents of the zip file:

```
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.

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

```
cp hibernate-release-4.1.0.Final/lib/optional/ehcache/hibernate-ehcache-4.1.0.Final.jar $HIBERNATE_JAR_DIR
cp hibernate-release-4.1.0.Final/lib/required/hibernate-commons-annotations-4.0.1.Final.jar $HIBERNATE_JAR_DIR
cp hibernate-release-4.1.0.Final/lib/required/hibernate-core-4.1.0.Final.jar $HIBERNATE_JAR_DIR
cp hibernate-release-4.1.0.Final/lib/required/hibernate-jpa-2.0-api-1.0.1.Final.jar $HIBERNATE_JAR_DIR
cp hibernate-release-4.1.0.Final/lib/required/javassist-3.15.0-GA.jar $HIBERNATE_JAR_DIR
cp hibernate-release-4.1.0.Final/lib/required/jboss-transaction-api_1.1_spec-1.0.0.Final.jar $HIBERNATE_JAR_DIR
```

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

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

7. Click the “5.2.3.Final” link to download the zip file.
8. Extract the contents of the zip file:

```
jar xvf hibernate-release-5.2.3.Final.zip
```

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

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


Oracle WebLogic Server 12.2.1.3+ (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 using Fusion Middleware Infrastructure Installer 12.2.1.3+.

Note:

You need to apply the **WLS PATCH SET UPDATE 12.2.1.3.181016** patch (Patch Number: 28298734) after installing Oracle WebLogic Server.

While creating a domain, select the **Oracle Restricted JRF - 12.2.1 [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension - 12.2.1 [wlserver]** option is selected automatically.

5.3 Oracle Solaris 11 Application Server

This section describes the software requirements for operating the application using the Oracle Solaris 11 application server.

5.3.1 Supported Application Servers

Operating System	Chipsets	Application Server
Solaris 11.x ¹¹ (64-bit)	SPARC	Oracle WebLogic 12.2.1.3+ (64-bit)

5.3.2 Web/Application Server Tier

Solaris 11 Operating System Running on SPARC-based 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 User ID	cissys	
ORMB User Group	cisusr	

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

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

¹¹ Here, **x** represents the vendor supported version.

By default, the `cissys` user ID is the only one given access to the files installed.

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

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

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

```
set +o noclobber
```

Security Configuration

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

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 007 to ensure files created during normal operation have the correct permissions.

Please replace these users and groups for your installation defaults:

User	Group	Description
<code>cissys</code>	<code>cisusr</code>	This user will be used to install the application and to apply patches. This user will own all the application files. The same care should be taken with this user ID as if it is 'root'. This user will be able to add, delete and modify the files within the application.
<code>cisadm</code>	<code>cisusr</code>	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.

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

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

Oracle Database Client 12.1.0.2 - Runtime Option

Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

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

Oracle Java Development Kit Version 8.0 Update 144 or Later, 64-Bit

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

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

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

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

Hibernate 4.1.0

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

1. Create a Hibernate Third Party JAR Depot:

```
export HIBERNATE_JAR_DIR=<Hibernate Third Party JAR Depot>
```

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

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

3. Click the “4.1.0.Final” link to download the zip file.
4. Extract the contents of the zip file:

```
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.

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

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

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

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

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

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

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

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

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

7. Click the “5.2.3.Final” link to download the zip file.

8. Extract the contents of the zip file:

```
jar xvf hibernate-release-5.2.3.Final.zip
```

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

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

Oracle WebLogic Server 12.2.1.3+ (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 using Fusion Middleware Infrastructure Installer 12.2.1.3+

Note:

You need to apply the **WLS PATCH SET UPDATE 12.2.1.3.181016** patch (Patch Number: 28298734) after installing Oracle WebLogic Server.

While creating a domain, select the **Oracle Restricted JRF - 12.2.1 [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension - 12.2.1 [wlserver]** option is selected automatically.

5.4 Windows 2012 Application Server

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

5.4.1 Supported Application Servers

Operating System	Chipsets	Application Server
Windows Server 2012 R2 (64-bit)	x86_64	Oracle WebLogic 12.2.1.3+ (64-bit)

5.4.2 Web/Application Server Tier

File and Directory Names Limitations

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

Oracle Database Client 12.1.0.2 — Runtime Option

Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

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

Oracle Java Development Kit Version 8.0 Update 144 or Later, 64-Bit

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

<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

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

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

Hibernate 4.1.0

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

1. Create a Hibernate Third Party JAR Depot:

```
set HIBERNATE_JAR_DIR=<Hibernate Third Party JAR Depot>
```

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

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

3. Click the “4.1.0.Final” link to download the zip file.
4. Extract the contents of the zip file:

```
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.

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

```
cp hibernate-release-4.1.0.Final/lib/optional/ehcache/hibernate-ehcache-4.1.0.Final.jar %HIBERNATE_JAR_DIR%
cp hibernate-release-4.1.0.Final/lib/required/hibernate-commons-annotations-4.0.1.Final.jar %HIBERNATE_JAR_DIR%
cp hibernate-release-4.1.0.Final/lib/required/hibernate-core-4.1.0.Final.jar %HIBERNATE_JAR_DIR%
cp hibernate-release-4.1.0.Final/lib/required/hibernate-jpa-2.0-api-1.0.1.Final.jar %HIBERNATE_JAR_DIR%
cp hibernate-release-4.1.0.Final/lib/required/javassist-3.15.0-GA.jar %HIBERNATE_JAR_DIR%
cp hibernate-release-4.1.0.Final/lib/required/jboss-transaction-api_1.1_spec-1.0.0.Final.jar %HIBERNATE_JAR_DIR%
```

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

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

7. Click the “5.2.3.Final” link to download the zip file.

8. Extract the contents of the zip file:

```
jar xvf hibernate-release-5.2.3.Final.zip
```

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

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

Oracle WebLogic Server 12.2.1.3+ (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 using Fusion Middleware Infrastructure Installer 12.2.1.3+.

Note:

You need to apply the **WLS PATCH SET UPDATE 12.2.1.3.181016** patch (Patch Number: 28298734) after installing Oracle WebLogic Server.

While creating a domain, select the **Oracle Restricted JRF - 12.2.1 [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension - 12.2.1 [wlserver]** option is selected automatically.

5.5 Additional Prerequisite Software Information

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

- Setting Up and Using the Additional JAR Directory

5.5.1 Setting Up and Using the Additional JAR Directory

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

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

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

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

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

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

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

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

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

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

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

6. 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

6.1 Installation Overview

The installation packages for your Oracle Utilities Application Framework-based application must be downloaded from [Oracle Software Delivery Cloud](#). You need to do a fresh installation of the application server and you cannot upgrade an existing application server.

Before you proceed with the installation process:

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

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

You can download the installation packages from [Oracle Software Delivery Cloud](#).

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

Application server installation packages delivered for this version are multi-platform and are ready to install on any supported platform (as described in the [Supported Platforms](#) section).

6.2 Pre-Installation Tasks

6.2.1 Hardware and Software Version Prerequisites

The [Supported Platforms](#) section contains all of the available platforms that are required with this release of the product.

6.2.2 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.

6.2.3 Installation Prerequisites

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

6.2.4 Copying and Decompressing Install Media

The Oracle Utilities Application Framework V4.3.0.6.0 installation file is delivered in the JAR format for AIX, Linux, Solaris, and Windows platforms.

If you are planning to install multiple Oracle Utilities Application Framework V4.3.0.6.0 environments operated by different Oracle Utilities Administrator User IDs, you must complete each of the following installation steps for each administrator user ID.

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

1. Login to the application server host with the Oracle Utilities Application Framework administrator user ID (default cissys).
2. Download the Oracle Utilities Customer Care and Billing 2.7.0.0.0 - Oracle Utilities Application Framework (4.3.0.6.0) Installation Package from the Oracle Utilities Customer Care and Billing 2.7.0.0.0 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 environments. All files placed in this directory which are required for installation can be deleted after completing the installation successfully.

4. Unzip the downloaded file in your local folder. The contents include the `FW-V4.3.0.6.0-MultiPlatform.jar` file.
5. Copy the `FW-V4.3.0.6.0-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 JAR file:

```
cd <TEMPDIR>
```

```
jar -xvf FW-V4.3.0.6.0-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>

The contents of the JAR file include a sub-directory named `FW.V4.3.0.6.0`.

6.2.5 Set Permissions for the CISTAB File in Linux

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

The install utility checks permissions and if it identifies a lack of the necessary permissions, it generates a script in the `<TEMPDIR>/FW.V4.3.0.6.0` directory named `cistab_<SPLENVIRON>.sh`. Run the generated script using the root account before continuing with the installation process. The script initializes the `cistab` file in `/etc` directory (if it is the first Oracle Utilities Application Framework application environment on the server) and registers a new environment.

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

6.3 Installing Oracle Utilities Application Framework Version 4.3.0.6.0

To install Oracle Utilities Application Framework (OUAF) Version 4.3.0.6.0:

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

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

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

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

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

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

Note:

The `<Java_Home>` is the location where you have installed Java 1.8.

The above command is applicable only for Linux platform.

4. Change to the `<TEMPDIR>/FW.V4.3.0.6.0` directory.

Note: The `<TEMPDIR>` folder is the location where you have extracted the contents of the `FW-V4.3.0.6.0-MultiPlatform.jar` file.

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

AIX, Linux:

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

Windows:

```
install.cmd
```

The following message appears in the command line:

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

6. Type <ORACLE_CLIENT_HOME>, and then press **Enter**. The following environment installation menus appear in the command line:
- 1. Environment ID, Roles, Third Party Software Configuration
 - 2. Keystore Options
 - 50. Environment Installation Options

Note:

The <ORACLE_CLIENT_HOME> is the location where Oracle Database Client is installed. This is required to execute the Perl installation utilities.

If the ORACLE_CLIENT_HOME environment variable is set, the installation utility will not request you to provide this information.

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

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

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

Note: For more details about these menu options, refer to the [Keystore Options](#) section.

11. Type **50** to define values for the environment installation options, and then press **Enter**. The utility prompts you to enter values for a list of menu options.
12. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the \$SPLEBASE/etc/ENVIRON.INI file.

Note:

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

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

For more details about these menu options, refer to the [Environment Installation Options](#) section.

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

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

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

15. Specify the environment description, and then press **Enter**.

Note: For more details, refer to the [Environment Description](#) section.

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

17. Specify the required value for menu options, and then press **Enter**.

Note: For more details about these menu options, refer to the [Business Application Server Configuration](#) section.

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

19. Specify the required value for menu options, and then press **Enter**.

Note: For more details about these menu options, refer to the [Web Application Server Configuration](#) section.

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

21. Specify the required value for menu options, and then press **Enter**.

Note: For more details about these menu options, refer to the [Database Configuration](#) section.

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

23. Specify the required value for menu options, and then press **Enter**.

Note: For more details about these menu options, refer to the [General Configuration Options](#) section.

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

25. Specify the required value for menu options, and then press **Enter**.

Note: For more details about these menu options, refer to the [OUAF TrustStore Options](#) section.

26. Type **P** to proceed with the installation. The Oracle Utilities Application Framework Version 4.3.0.6.0 is installed on the application server.

Note:

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

The values that you specify for the menu options are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

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 Linux machine, this utility is available in the `$SPLEBASE/bin` directory. And, on the Windows machine, this utility is available in the `%SPLEBASE%\bin` directory.
2. `splenviron` - Once the `ENVIRON.INI` file is created and contains the correct environment parameters, the `splenviron` utility sets up all the necessary environment variables and shell settings for the application server to function correctly. On the Linux machine, this utility is available in the `$SPLEBASE/bin` directory. And, on the Windows machine, this utility is available in the `%SPLEBASE%\bin` directory. The following are some of the key environment variables that are set using the `splenviron` utility:

- `$PATH`
- `$SPLEBASE (%SPLEBASE%)` - Indicates the `<SPLDIR>/<SPLENVIRON>` directory
- `$SPLOUTPUT (%SPLOUTPUT%)` - Indicates the `<SPLDIROUT>/<SPLENVIRON>` directory
- `$SPLENVIRON (%SPLENVIRON%)` - Indicates the environment name

For future operations or any post installation steps, you need to first execute the following command to setup your session to the new environment:

AIX, Linux:

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

Windows:

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

You need to execute this script each time you want to be connected to the specific environment before performing manual operations such as shutdown, startup or performing an additional application product installation.

When you have finished the install process, your current online session will be connected to the new environment.

For more information, see the [Planning the Installation](#) section for settings and configuration.

6.4 Post Installation Tasks

Once you install Oracle Utilities Application Framework V4.3.0.6.0, you need to do the following:

1. [Install Rollup Pack for Oracle Utilities Application Framework Version 4.3.0.6.0](#)

6.4.1 Installing Rollup Pack for OUAF Version 4.3.0.6.0

To install the rollup pack for Oracle Utilities Application Framework Version 4.3.0.6.0:

1. Download the Oracle Utilities Application Framework V4.3.0.6.0 Single Fix Prerequisite Rollup for RMB V2.8.0.0.0 package from the Oracle Revenue Management and Billing V2.8.0.0.0 media pack which is available on [Oracle Software Delivery Cloud](#). A zip file is downloaded.
2. Unzip the downloaded file in the `TEMPDIR` directory. The contents include the `ORMB-V28000-FW-PREREQ-MultiPlatform.jar` file.
3. Decompress the JAR file using the following command:

```
cd <TEMPDIR>
```

```
jar -xvf ORMB-V28000-FW-PREREQ-MultiPlatform.jar
```

A sub-directory named `FW-V4.3.0.6.0-Rollup` is extracted. It contains the following two sub-folders:

- Application
- Database

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

AIX, Linux:

```
$SPLBASE/bin/splenvron.sh -e $SPLENVIRON
```

Windows:

```
$SPLBASE\bin\splenvron.cmd -e %SPLENVIRON%
```

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

```
cd <TEMPDIR>/FW-V4.3.0.6.0-Rollup/Application
```

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

AIX, Linux:

```
chmod a+x installSFgroup.sh
```

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

```
./installSFgroup.sh
```

Windows:

```
installSFgroup.cmd
```

7. 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:

- Pre-installation Tasks
- Installing the Application
- Post Installation Tasks
- 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.

7.1 Pre-installation Tasks

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

7.1.1 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 Oracle Utilities Application Framework.
2. Download the Oracle Revenue Management and Billing V2.8.0.0.0 Multiplatform package from the Oracle Revenue Management and Billing V2.8.0.0.0 media pack which is available on [Oracle Software Delivery Cloud](#). A zip file is downloaded.
3. Unzip the downloaded file in the `<TEMPDIR>` directory.

Note:

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

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

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

The contents of the zip file include a directory named ORMB.V2.8.0.0.0.

7.2 Installing the Application

To install Oracle Revenue Management and Billing (ORMB) Version 2.8.0.0.0:

1. Login to the application server using the administrator's credentials.
2. Initialize the application environment (on which you want to install the application) using the following command:

AIX, Linux:

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

Windows:

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

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

3. Stop the managed server where the application is hosted using the WebLogic Console.
4. Change to the ORMB.V2.8.0.0.0 folder using the following command:

AIX, Linux:

```
cd <TEMPDIR>/ORMB.V2.8.0.0.0
```

Windows:

```
cd <TEMPDIR>\ORMB.V2.8.0.0.0
```

5. 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):
```

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

Note:

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

AIX, Linux:

```
$SPLEBASE/bin/configureEnv.sh -a
```

Windows:

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

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

7.3 Post Installation Tasks

Once you install Oracle Revenue Management and Billing (ORMB) Version 2.8.0.0.0, you need to apply the following on the application environment:

- ROLLUP PACK 1 FOR 2.8.0.0.0 (Patch Number: 29889611)

Note: In addition, you need to apply all patches released for 2.8.0.0.0 on [My Oracle Support](#) which are not included in the above rollup pack.

7.3.1 Applying the 29889611 Patch

Once you install ORMB, you need to apply the ROLLUP PACK 1 FOR 2.8.0.0.0 patch (Patch Number: 29889611). To apply the ROLLUP PACK 1 FOR 2.8.0.0.0 patch:

1. Download the ROLLUP PACK 1 FOR 2.8.0.0.0 patch (Patch Number: 29889611) from [My Oracle Support](#). A zip file is downloaded.
2. Unzip the downloaded file in your local folder. The contents include `README.txt` and three folders named `RMB_V2.8.0.0.0_App_Rollup`, `RMB_V2.8.0.0.0_DB_Rollup`, and `RMB_V2.8.0.0.0_PFDs`.
3. Initialize the application environment (on which you want to install the patch) using the following command:

AIX, Linux:

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

Windows:

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

Where,

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

4. Change to the RMB_V2.8.0.0.0_App_Rollup folder using the following command:

AIX, Linux:

```
cd <DESTINATION_FOLDER_1>/RMB_V2.8.0.0.0_App_Rollup
```

Windows:

```
cd <DESTINATION_FOLDER_1>\RMB_V2.8.0.0.0_App_Rollup
```

Note: The <DESTINATION_FOLDER_1> folder is the location where you have extracted the contents of the ROLLUP PACK 1 FOR 2.8.0.0.0 patch.

5. Install the patch using the following command:

AIX, Linux:

```
./installSFgroup.sh
```

Windows:

```
installSFgroup.cmd
```

7.3.2 Creating the billView Directory

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

7.4 Installing User Documentation

User manuals and other technical documents are available in the Portable Document Format (PDF). You can download Oracle Revenue Management and Billing release specific documentation library (for example, Oracle Revenue Management and Billing Version 2.8.X.X.X Documentation Library) using the following URL:

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

The online help is provided in the HTML format. It is located inside the Oracle Revenue Management and Billing application server installation package. It is automatically installed and can be launched from the user interface. The online help files are available under the `applications` directory. In case of Oracle WebLogic application server, the online help is packaged in the file named `ohelp.ear`. The online help is provided in English (ENG).

7.5 Operating the Application

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

7.6 Installing Service Packs and Patches

Periodically, Oracle Revenue Management and Billing releases a service pack of single fixes for its products. A service pack is an update to an existing release that includes solutions to known problems and other product enhancements. A service pack is not a replacement for an installation, but a pack consisting of a collection of changes and additions for it. The service pack may include changes to be applied to the application server, the database, or both. The service pack includes all files necessary for installing the collection of changes, including installation instructions.

Between services packs, Oracle Revenue Management and Billing releases patches to fix individual bugs. For information on installing patches, see knowledge base article ID 974985.1 on [My Oracle Support](#). Service packs and patches can be downloaded from [My Oracle Support](#).

8. Additional Tasks

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

- Importing Self-Signed Certificates
- Customizing Configuration Files
- Centralized Properties Customization
- Generating the Application Viewer
- Building Javadocs Indexes
- Configuring the Environment for Batch Processing
- Customizing the Logo
- Deploying Inbound Web Services (IWS)
- Domain Templates
- Invoking Custom Batch Notifier

8.1 Importing Self-Signed Certificates

If you are using self-signed certificates and the inbound web services (IWS) feature, then it is necessary to import these certificates into the ouaf truststore file. Perform the following commands:

1. Start weblogic
2. Initialize a command shell and setup the environment by running the following:

AIX, Linux:

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

For example:

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

Windows:

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

For example:

```
D:\ouaf\TEST_ENVIRON1\bin\splenviron.cmd -e TEST_ENVIRON1
```

3. Execute the following script to generate all information.

AIX, Linux:

```
$SPLEBASE/bin/initialSetup.sh -i [<server>:<port>]
```

Windows:

```
%SPLEBASE%\bin\ initialSetup.cmd -i [<server>:<port>]
```

Note:

If the server name and port number are not specified, these details are retrieved from the `ENVIRON.INI` file.

This needs to be performed before deploying the IWS application.

8.2 Customizing Configuration Files

You may wish to modify various configuration files. If you wish to make custom modifications in configuration files, create a 'CM copy' of the template file or user exit. This preserves your changes whenever `initialSetup` is executed; otherwise, your changes to the delivered template files will be lost if it is patched in the future.

For example, to customize hibernate properties of the SPLWeb web application, perform the following:

1. Locate the `hibernate.properties.template` file in the `$SPLEBASE/templates` directory.
2. Copy the file and rename it to `cm.hibernate.properties.template`.
3. Make the required changes in the `cm.hibernate.properties.template` file.
4. Update the application war file with the latest changes by executing the following command:

AIX, Linux:

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

Windows:

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

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

8.3 Centralized Properties Customization

This feature gives the ability to add, modify, and remove properties in one file. The properties are propagated to the specified property files. The template process, which is part of the **initialSetup** step, will look at the **etc/<PROD>_properties.ini** file (this can be created as a Customer Customization). If the file exists, the content will be processed for the relevant properties.

Note: Product teams might use the **etc/<PROD>_properties.ini** file format (where **<PROD>** could be one of the list of installed products included in the **etc/PRODUCT.txt** file). If it exists, it will be processed as well.

<PROD>_properties.ini examples

Type of entries that could be included into the **<PROD>_properties.ini** file and relevant type of action:

```
<PROPERTIES_FILE>:<PROPERTY_NAME>=<VALUE>
```

- Override **<PROPERTY_NAME>** in **<PROPERTIES_FILE>** with **<VALUE>** if exists.
- Insert **<PROPERTY_NAME>** in **<PROPERTIES_FILE>** with **<VALUE>** if it doesn't exist.

<PROPERTY_NAME>=<VALUE>

- Override <PROPERTY_NAME> in all property files with <VALUE>, if <PROPERTY_NAME> exists

<PROPERTIES_FILE>:<PROPERTY_NAME>=[DELETE]

- Remove <PROPERTY_NAME> from <PROPERTIES_FILE> if it exists.

<PROPERTY_NAME>=[DELETE]

- Remove <PROPERTY_NAME> from all property files, if <PROPERTY_NAME> exists.

Template example -> hibernate.service.properties.template:

```
hibernate.user = @DBUSER@
hibernate.pass = @DBPASS@
hibernate.ucp.validate_connection = true
```

ENVIRON.INI example:

```
DBUSER=cisadm
```

<PROD>_properties.ini example:

```
hibernate.service.properties.template:hibernate.user=clouduser
hibernate.password=cloudpwd
hibernate.iws.properties.template:hibernate.user=clouduser
hibernate.service.properties.template:hibernate.ucp.validate_connection=[DELETE]
hibernate.service.properties.template:new.property=test
```

hibernate.service.properties generated properties file result:

```
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.user=clouduser
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.password=cloudpwd
### The following line was deleted because of the
<PROD>_properties.ini file setting:
# hibernate.ucp.validate_connection = true
### The following line was appended because of the
<PROD>_properties.ini file setting:
new.property = test
```

hibernate.iws.properties generated properties file result:

```
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.user=clouduser
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.password=cloudpwd
```

8.4 Generating the Application Viewer

You may extend application viewer capabilities within an environment by generating additional items. These items that can be generated include information about algorithm types, algorithms, maintenance objects, and data dictionary information. The Javadocs indexes are also rebuilt.

To generate the additional items in the application viewer:

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

AIX, Linux:

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

For example:

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

Windows:

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

For example:

```
D:\ouaf\TEST_ENVIRON1\bin\splenviron.cmd -e TEST_ENVIRON1
```

3. Execute the following script to generate all information:

AIX, Linux:

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

Windows:

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

4. Restart your application.

8.5 Building Javadocs Indexes

Rebuilding Javadoc indexes is already part of generating application viewer above. However, there are times when you need to run it separately. For example, this is required after customer modifications (CM) have been applied to an environment when it includes Java code.

Perform the following to rebuild the Javadoc indexes.

Windows:

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

AIX, Linux:

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

8.6 Configuring the Environment for Batch Processing

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

8.7 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: `https://<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:

```
https://<host name>:<websslport>/<Web Context>/cm/<customer_logo_file>.gif
```

AIX, Linux:

```
https://<host name>:<websslport>/<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.

8.8 Deploying Inbound Web Services (IWS)

All existing XAI Inbound Services have been duplicated as Inbound Web Services as the application moves toward deprecation of XAI and full transition to IWS in the next release. The duplicated services are designed to work seamlessly in this release, and customers providing custom services are encouraged to migrate to IWS to take full advantage of the new, more efficient Web service technology. For more information on migrating from XAI to IWS, please refer to *Migrating from XAI to IWS Oracle Utilities Application Framework (Doc ID: 1644914.1)* on [My Oracle Support](#).

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

For deploying IWS, please follow the steps below:

AIX, Linux:

1. Execute this step in `$SPLEBASE/bin`. Please note that the application server should be up before running the below command.

```
ksh ./iwsdeploy.sh
```

Windows:

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

```
iwsdeploy.cmd
```

8.9 Domain Templates

Configure the WebLogic application server to deploy it. Refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Doc ID 2413918.1)* whitepaper on [My Oracle Support](#).

8.10 Invoking Custom Batch Notifier

You need to do this additional task to ensure that the To Dos are generated once the following batches are executed:

- Upload and Validate Usage Data File (C1-ODFU)
- Billable Charge Creation (C1-ODBCH)
- Adhoc Billing (C1-FABL)
- Freeze and Complete Adhoc Bills (C1-FCADH)
- Any other standard or custom batch which is configured to generate notification once the batch is completed.

To generate custom notification once a batch is completed, you need to do the following:

1. Add the following line in the `../$SPLEBASE/templates/threadpoolworker.properties.template` file:

```
com.splwg.batch.custom.notifier=com.splwg.ccb.domain.batch.CustomBatchNotifier
```
2. Re-initialize the environment using the following command:

AIX, Linux:

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

Windows:

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

3. Restart your application.

Appendix A : Application Framework Prerequisite Patches

Oracle Utilities Application Framework patches must be installed prior to installing Oracle Revenue Management and Billing. These patches are available in the rollup pack named Oracle Utilities Application Framework V4.3.0.6.0 Single Fix Prerequisite Rollup for RMB V2.8.0.0.0. The BUGLIST.txt file in the FW-V4.3.0.6.0-Rollup\Application directory lists the bugs for which patches are available in the rollup pack.

Appendix B : ORMB V2.8.0.0.0 Bug Fixes

To view a list of bugs fixed in the current release, refer to Oracle Revenue Management and Billing Version 2.8.0.0.0 Release Notes.

Appendix C : License and Copyright Notices

This section provides license and copyright information for the associated products. It includes the following notices:

- [Notice Concerning Usage of ANTLR](#)
- [Notice Concerning Usage of Apache Software](#)
- [Notice Concerning Usage of ASM](#)
- [Notice Concerning Usage of CodeMirror](#)
- [Notice Concerning Usage of Concurrent](#)
- [Notice Concerning Usage of DOM4J](#)
- [Notice Concerning Usage of FullCalendar](#)
- [Notice Concerning Usage of Graph Builder](#)
- [Notice Concerning Usage of International Components for Unicode \(ICU4J\)](#)
- [Notice Concerning Usage of Jaxen](#)
- [Notice Concerning Usage of JfreeChart Library](#)
- [Notice Concerning Usage of JQuery](#)
- [Notice Concerning Usage of JQuery UI](#)
- [Notice Concerning Usage of Knockout](#)
- [Notice Concerning Usage of Microsoft .NET](#)
- [Notice Concerning Usage of Moment.js](#)
- [Notice Concerning Usage of SLF4J](#)
- [Notice Concerning Usage of Staxmate](#)
- [Notice Concerning Usage of Swagger-UI](#)
- [Notice Concerning Usage of XMLPULL](#)
- [Notice Concerning Usage of XStream](#)

C.1 Third-Party Products

The following sections provide notices and information about the third party products indicated.

C.1.1 Notice Concerning Usage of ANTLR

[The BSD License]

Copyright (c) 2012 Terence Parr and Sam Harwell

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the author nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

C.1.2 Notice Concerning Usage of Apache Software

The following files are covered under the Apache 2.0 license:

- ant-1.10.1.jar
- apache-xmlbeans-2.6.0.jar
- bsf-2.4.0.jar
- castor-core-1.4.1.jar
- castor-xml-1.4.1.jar
- castor-xml-schema-1.4.1.jar
- cglib-3.2.4.jar
- commonj-12.1.3.0.0.jar
- commons-beanutils-1.9.3.jar
- commons-cli-1.3.1.jar
- commons-codec-1.9.jar
- commons-collections-3.2.2.jar
- commons-fileupload-1.3.3.jar
- commons-io-1.3.2.jar
- commons-lang-2.2.jar
- commons-lang3-3.4.jar
- commons-logging-1.2.jar
- ehcache-core-2.5.2.jar
- fop.jar

- groovy-2.4.5.jar
- groovy-xml-2.4.5.jar
- httpclient-4.5.5.jar
- httpcore-4.4.9.jar
- jackson-annotations-2.8.5.jar
- jackson-core-2.8.5.jar
- jackson-databind-2.8.5.jar
- jettison-1.3.8.jar
- log4j-api-2.11.0.jar
- log4j-core-2.11.0.jar
- log4j-slf4j-impl-2.11.0.jar
- poi-3.17.jar
- poi-examples-3.17.jar
- poi-excelant-3.17.jar
- poi-ooxml-3.17.jar
- poi-ooxml-schemas-3.17.jarx
- poi-scratchpad-3.17.jar
- serializer-2.7.2.jar
- velocity-1.7.jar
- xalan-2.7.2.jar

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions

“License” shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

“Licensor” shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

“Legal Entity” shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, “control” means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

“You” (or “Your”) shall mean an individual or Legal Entity exercising permissions granted by this License.

“Source” form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

“Object” form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

“Work” shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

“Derivative Works” shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

“Contribution” shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, “submitted” means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.”

“Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that you meet the following conditions:

- You must give any other recipients of the Work or Derivative Works a copy of this License; and
- You must cause any modified files to carry prominent notices stating that You changed the files; and
- You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add your own attribution notices within Derivative Works that you distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add your own copyright statement to your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of your modifications, or for any such Derivative Works as a whole, provided your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions

Unless you explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by you to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks

This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with your exercise of permissions under this License.

8. Limitation of Liability

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability

While redistributing the Work or Derivative Works thereof, you may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

C.1.3 Notice Concerning Usage of ASM

Copyright (c) 2000-2005 INRIA, France Telecom

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

C.1.4 Notice Concerning Usage of CodeMirror

Copyright (C) 2017 by Marijn Haverbeke <marijnh@gmail.com> and others.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.5 Notice Concerning Usage of Concurrent

All classes are released to the public domain and may be used for any purpose whatsoever without permission or acknowledgment.

<http://g.oswego.edu/dl/classes/EDU/oswego/cs/dl/util/concurrent/intro.html>

C.1.6 Notice Concerning Usage of DOM4J

Copyright 2001-2010 (C) MetaStuff, Ltd. All Rights Reserved.

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain copyright statements and notices. Redistributions must also contain a copy of this document.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- The name “DOM4J” must not be used to endorse or promote products derived from this Software without prior written permission of MetaStuff, Ltd. For written permission, please contact dom4j-info@metastuff.com.
- Products derived from this Software may not be called “DOM4J” nor may “DOM4J” appear in their names without prior written permission of MetaStuff, Ltd. DOM4J is a registered trademark of MetaStuff, Ltd.
- Due credit should be given to the DOM4J Project - <http://dom4j.sourceforge.net>.

THIS SOFTWARE IS PROVIDED BY METASTUFF, LTD. AND CONTRIBUTORS ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL METASTUFF, LTD. OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

C.1.7 Notice Concerning Usage of FullCalendar

Copyright (c) 2015 Adam Shaw

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.8 Notice Concerning Usage of Graph Builder

Copyright (c) 2005, Graph Builder

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of Graph Builder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

C.1.9 Notice Concerning Usage of International Components for Unicode (ICU4J)

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2010 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

C.1.10 Notice Concerning Usage of Jaxen

Copyright 2003-2006 The Werken Company. All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the Jaxen Project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

C.1.11 Notice Concerning Usage of JfreeChart Library

The following files are covered under the JfreeChart library:

- jfreechart-1.5.0.jar
- jcommon-1.0.22.jar

GNU Lesser General Public License

Version 3.0, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://www.fsf.org/>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

Additional Definitions

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

- a. Under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or
- b. Under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

- a. Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.
- b. Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

- a. Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.
- b. Accompany the Combined Work with a copy of the GNU GPL and this license document.
- c. For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.
- d. Do one of the following:
 - i. Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.
 - ii. Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.
- e. Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

- a. Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.
- b. Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

C.1.12 Notice Concerning Usage of JQuery

Copyright (c) 2011 John Resig, <http://jquery.com/>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.13 Notice Concerning Usage of JQuery UI

Copyright jQuery Foundation and other contributors, <https://jquery.org/>

This software consists of voluntary contributions made by many individuals. For exact contribution history, see the revision history available at <https://github.com/jquery/jquery-ui>.

The following license applies to all parts of this software except as documented below: Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.14 Notice Concerning Usage of Knockout

Copyright (c) 2013 Steven Sanderson

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.15 Notice Concerning Usage of Microsoft .NET

MICROSOFT SOFTWARE LICENSE TERMS MICROSOFT .NET LIBRARY

These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any.

The terms also apply to any Microsoft updates, supplements, Internet-based services, and support services for this software, unless other terms accompany those items. If so, those terms apply. BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS. IF YOU DO NOT ACCEPT THEM, DO NOT USE THE SOFTWARE.

IF YOU COMPLY WITH THESE LICENSE TERMS, YOU HAVE THE PERPETUAL RIGHTS BELOW.

1. INSTALLATION AND USE RIGHTS.

- a. **Installation and Use** - You may install and use any number of copies of the software to design, develop and test your programs.
- b. **Third Party Programs** - The software may include third party programs that Microsoft, not the third party, licenses to you under this agreement. Notices, if any, for the third party program are included for your information only.

2. ADDITIONAL LICENSING REQUIREMENTS AND/OR USE RIGHTS.

- a. **DISTRIBUTABLE CODE** - The software is comprised of Distributable Code.

“Distributable Code” is code that you are permitted to distribute in programs you develop if you comply with the terms below.

i. **Right to Use and Distribute** –

- You may copy and distribute the object code form of the software.
- Third Party Distribution. You may permit distributors of your programs to copy and distribute the Distributable Code as part of those programs.

ii. **Distribution Requirements** - For any Distributable Code you distribute, you must

- add significant primary functionality to it in your programs;
- require distributors and external end users to agree to terms that protect it at least as much as this agreement;
- display your valid copyright notice on your programs; and
- indemnify, defend, and hold harmless Microsoft from any claims, including attorneys’ fees, related to the distribution or use of your programs.

iii. **Distribution Restrictions** - You may not

- alter any copyright, trademark or patent notice in the Distributable Code;
- use Microsoft’s trademarks in your programs’ names or in a way that suggests your programs come from or are endorsed by Microsoft;
- include Distributable Code in malicious, deceptive or unlawful programs; or
- modify or distribute the source code of any Distributable Code so that any part of it becomes subject to an Excluded License. An Excluded License is one that requires, as a condition of use, modification or distribution, that the code be disclosed or distributed in source code form; or others have the right to modify it.

3. SCOPE OF LICENSE.

The software is licensed, not sold. This agreement only gives you some rights to use the software. Microsoft reserves all other rights. Unless applicable law gives you more rights despite this limitation, you may use the software only as expressly permitted in this agreement. In doing so, you must comply with any technical limitations in the software that only allow you to use it in certain ways. You may not:

- work around any technical limitations in the software;
- reverse engineer, decompile or disassemble the software, except and only to the extent that applicable law expressly permits, despite this limitation;
- publish the software for others to copy;
- rent, lease or lend the software;
- transfer the software or this agreement to any third party; or
- use the software for commercial software hosting services.

4. BACKUP COPY.

You may make one backup copy of the software. You may use it only to reinstall the software.

5. DOCUMENTATION.

Any person that has valid access to your computer or internal network may copy and use the documentation for your internal, reference purposes.

6. EXPORT RESTRICTIONS.

The software is subject to United States export laws and regulations. You must comply with all domestic and international export laws and regulations that apply to the software. These laws include restrictions on destinations, end users and end use. For additional information, see www.microsoft.com/exporting.

7. SUPPORT SERVICES.

Because this software is “as is,” we may not provide support services for it.

8. ENTIRE AGREEMENT.

This agreement, and the terms for supplements, updates, Internet-based services and support services that you use, are the entire agreement for the software and support services.

9. APPLICABLE LAW.**a. United States.**

If you acquired the software in the United States, Washington state law governs the interpretation of this agreement and applies to claims for breach of it, regardless of conflict of laws principles. The laws of the state where you live govern all other claims, including claims under state consumer protection laws, unfair competition laws, and in tort.

b. Outside the United States.

If you acquired the software in any other country, the laws of that country apply.

10. LEGAL EFFECT.

This agreement describes certain legal rights. You may have other rights under the laws of your country. You may also have rights with respect to the party from whom you acquired the software. This agreement does not change your rights under the laws of your country if the laws of your country do not permit it to do so.

11. DISCLAIMER OF WARRANTY.

THE SOFTWARE IS LICENSED “AS-IS.” YOU BEAR THE RISK OF USING IT. MICROSOFT GIVES NO EXPRESS WARRANTIES, GUARANTEES OR CONDITIONS. YOU MAY HAVE ADDITIONAL CONSUMER RIGHTS OR STATUTORY GUARANTEES UNDER YOUR LOCAL LAWS WHICH THIS AGREEMENT CANNOT CHANGE. TO THE EXTENT PERMITTED UNDER YOUR LOCAL LAWS, MICROSOFT EXCLUDES THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

FOR AUSTRALIA – YOU HAVE STATUTORY GUARANTEES UNDER THE AUSTRALIAN CONSUMER LAW AND NOTHING IN THESE TERMS IS INTENDED TO AFFECT THOSE RIGHTS.

12. LIMITATION ON AND EXCLUSION OF REMEDIES AND DAMAGES.

YOU CAN RECOVER FROM MICROSOFT AND ITS SUPPLIERS ONLY DIRECT DAMAGES UP TO U.S. \$5.00. YOU CANNOT RECOVER ANY OTHER DAMAGES, INCLUDING CONSEQUENTIAL, LOST PROFITS, SPECIAL, INDIRECT OR INCIDENTAL DAMAGES.

This limitation applies to:

- anything related to the software, services, content (including code) on third party Internet sites, or third party programs; and
- claims for breach of contract, breach of warranty, guarantee or condition, strict liability, negligence, or other tort to the extent permitted by applicable law.

It also applies even if Microsoft knew or should have known about the possibility of the damages. The above limitation or exclusion may not apply to you because your country may not allow the exclusion or limitation of incidental, consequential or other damages.

Please note: As this software is distributed in Quebec, Canada, some of the clauses in this agreement are provided below in French.

Remarque : Ce logiciel étant distribué au Québec, Canada, certaines des clauses dans ce contrat sont fournies ci-dessous en français.

EXONÉRATION DE GARANTIE. Le logiciel visé par une licence est offert « tel quel ». Toute utilisation de ce logiciel est à votre seule risque et péril. Microsoft n'accorde aucune autre garantie expresse. Vous pouvez bénéficier de droits additionnels en vertu du droit local sur la protection des consommateurs, que ce contrat ne peut modifier. La ou elles sont permises par le droit locale, les garanties implicites de qualité marchande, d'adéquation à un usage particulier et d'absence de contrefaçon sont exclues.

LIMITATION DES DOMMAGES-INTÉRÊTS ET EXCLUSION DE RESPONSABILITÉ POUR LES DOMMAGES. Vous pouvez obtenir de Microsoft et de ses fournisseurs une indemnisation en cas de dommages directs uniquement à hauteur de 5,00 \$ US. Vous ne pouvez prétendre à aucune indemnisation pour les autres dommages, y compris les dommages spéciaux, indirects ou accessoires et pertes de bénéfices.

Cette limitation concerne:

- tout ce qui est relié au logiciel, aux services ou au contenu (y compris le code) figurant sur des sites Internet tiers ou dans des programmes tiers ; et
- les réclamations au titre de violation de contrat ou de garantie, ou au titre de responsabilité stricte, de négligence ou d'une autre faute dans la limite autorisée par la loi en vigueur.

Elle s'applique également, même si Microsoft connaissait ou devrait connaître l'éventualité d'un tel dommage. Si votre pays n'autorise pas l'exclusion ou la limitation de responsabilité pour les dommages indirects, accessoires ou de quelque nature que ce soit, il se peut que la limitation ou l'exclusion ci-dessus ne s'appliquera pas à votre égard.

EFFET JURIDIQUE. Le présent contrat décrit certains droits juridiques. Vous pourriez avoir d'autres droits prévus par les lois de votre pays. Le présent contrat ne modifie pas les droits que vous confèrent les lois de votre pays si celles-ci ne le permettent pas.

C.1.16 Notice Concerning Usage of Moment.js

Copyright (c) 2011-2013 Tim Wood, Iskren Chernev, Moment.js contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.17 Notice Concerning Usage of SLF4J

SLF4J source code and binaries are distributed under the MIT license.

Copyright (c) 2004-2013 QOS.ch. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

C.1.18 Notice Concerning Usage of Staxmate

Copyright (c) 2007, Tatu Saloranta

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the <organization> nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY <copyright holder> "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL <copyright holder> BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

C.1.19 Notice Concerning Usage of Swagger-UI

Copyright 2016 SmartBear Software

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at apache.org/licenses/LICENSE-2.0.

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

<https://github.com/es-shims/es5-shim/blob/master/LICENSE>

The MIT License (MIT)

Copyright (C) 2009-2016 Kristopher Michael Kowal and contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

handlebars v4.0.5

Copyright (C) 2011-2015 by Yehuda Katz

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

jQuery BBQ: Back Button & Query Library - v1.2.1 - 2/17/2010 <http://benalman.com/projects/jquery-bbq-plugin/>

Copyright (c) 2010 "Cowboy" Ben Alman

Dual licensed under the MIT and GPL licenses. <http://benalman.com/about/license/> Copyright © 2010 "Cowboy" Ben Alman

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

jQuery Wiggle

Author: WonderGroup, Jordan Thomas

URL: <http://labs.wondergroup.com/demos/mini-ui/index.html>

License: MIT (http://en.wikipedia.org/wiki/MIT_License)

A common form of the MIT License (from the OSI's website, which is the same version as the "Expat License", and which is not identical to the license used in the X source code) is defined as follows:[8]

Copyright (c) <year> <copyright holders>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

An intermediate form of license used by the X Consortium for X11 used the following wording:[9]

Copyright (C) <date> X Consortium

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the X Consortium shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from the X Consortium.

X Window System is a trademark of X Consortium, Inc. JSON Editor v0.7.22 - JSON Schema -> HTML Editor

By Jeremy Dorn - <https://github.com/jdorn/json-editor/>

Released under the MIT license

Date: 2015-08-12

The MIT License (MIT) Copyright (c) 2013 Jeremy Dorn

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

lodash 3.10.1 (Custom Build) lodash.com/license | Underscore.js 1.8.3 underscorejs.org/LICENSE

Build: `lodash compat -o ./lodash.js`

Copyright jQuery Foundation and other contributors <<https://jquery.org/>>

Based on Underscore.js, copyright Jeremy Ashkenas, DocumentCloud and Investigative

Reporters & Editors <<http://underscorejs.org/>>

This software consists of voluntary contributions made by many individuals. For exact contribution history, see the revision history available at <https://github.com/lodash/lodash>.

The following license applies to all parts of this software except as documented below: Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

CC0: <http://creativecommons.org/publicdomain/zero/1.0/>

Copyright and related rights for sample code are waived via CC0. Sample code is defined as all source code displayed within the prose of the documentation.

Files located in the node_modules and vendor directories are externally maintained libraries used by this software which have their own licenses; we recommend you read them, as their terms may differ from the terms above.

marked - a markdown parser

Copyright (c) 2011-2014, Christopher Jeffrey. (MIT Licensed)

<https://github.com/chjj/marked>

Copyright (c) 2011-2014, Christopher Jeffrey (<https://github.com/chjj/>) Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

swagger-ui.js

Copyright 2009-2012 Kris Kowal under the terms of the MIT license found at:

<http://github.com/kriskowal/q/raw/master/LICENSE>

Copyright 2009–2016 Kristopher Michael Kowal. All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

With parts by Tyler Close

Copyright 2007-2009 Tyler Close under the terms of the MIT X license found at:

<http://www.opensource.org/licenses/mit-license.html>

Forked at ref_send.js version: 2009-05-11

The MIT License (MIT)

Copyright (c) <year> <copyright holders>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

With parts by Mark Miller

Copyright (C) 2011 Google Inc.

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>.

Unless required by applicable law or agreed to in writing, software * distributed under the License is distributed on an "AS IS" BASIS, * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.

C.1.20 Notice Concerning Usage of XMLPULL

XMLPULL API IS FREE

All of the XMLPULL API source code, compiled code, and documentation contained in this distribution *except* for tests (see separate LICENSE_TESTS.txt) are in the Public Domain.

XMLPULL API comes with NO WARRANTY or guarantee of fitness for any purpose.

Initial authors: Stefan Haustein and Aleksander Slominski

2001-12-12

C.1.21 Notice Concerning Usage of XStream

XStream is open source software, made available under BSD license.

Copyright (c) 2003-2006, Joe Walnes

Copyright (c) 2006-2009, 2011, XStream Committers

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of XStream nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.