Oracle Real-Time Scheduler

Installation Guide

Release 2.1.0.1

E26600-02

February 2012

ORACLE

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E26600-02

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Preface

This guide describes how to install Oracle Real-Time Scheduler.

This preface contains these topics:

- **Audience**
- **Related Documents**
- **Conventions**

Audience

Oracle Real-Time Scheduler Installation Guide is intended for system administrators installing Oracle Real-Time Scheduler.

To use this document you should have:

- Experience installing and configuring application servers and other software
- Administrative privileges on the host where you are installing the software

Related Documents

For more information, see these Oracle documents:

- *Oracle Real-Time Scheduler Quick Install Guide*
- *Oracle Real-Time Scheduler Database Administrator's Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1

Overview

This chapter provides an overview of the installation of Oracle Real-Time Scheduler.

Installation Overview

Installing Oracle Real-Time Scheduler involves the following steps:

1. Review the different tiers of the application architecture as described in **Chapter 2: Application Architecture Overview**.
2. Understand the hardware requirements for installing the application and the supported platforms for the application and database servers as described in **Chapter 3: Supported Platforms and Hardware Requirements**.

   Note: The installation and administration of the database server tier is described in detail in the document Oracle Real-Time Scheduler *Database Administrator's Guide*.
3. Plan your installation as described in **Chapter 4: Planning the Installation**.
4. Install the database as described in the document Oracle Real-Time Scheduler *Database Administrator's Guide*.
5. Install all required third-party software as described in **Chapter 6: Installing Application Server Prerequisite Software**. 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 **Chapter 7: Installing the Application Server Component of Oracle Utilities Application Framework**.
7. Install Oracle Real-Time Scheduler as described in **Chapter 8: Installing the Application Server Component of Oracle Real-Time Scheduler**.
8. Install the Mobile Client for Oracle Real-Time Scheduler on mobile devices as described in **Chapter 9: Installing the Mobile Client**.
9. Follow the installation guidelines described in **Chapter 10: Additional Tasks**.

Chapter 2

Application Architecture Overview

This section provides an overview of the Oracle Real-Time Scheduler application architecture.

Application Architecture

The Oracle Real-Time Scheduler application is deployed on multiple tiers.

Please see the Oracle Real-Time Scheduler *Server Administration Guide* for a more detailed description of the application architecture and individual tiers.

Tier 1: Desktop/Client, or Presentation Tier

This tier is implemented in a browser-based client. Users use a desktop client web browser to log in to and use the Oracle Real-Time Scheduler application. Note also that a desktop machine running Microsoft Windows and the Oracle client is required to perform some of the Oracle Real-Time Scheduler installation steps.

Tier 2: Mobile Client Tier

This tier is implemented on mobile computers such as laptops and handhelds. Users can install the mobile client software to use the mobile functionality of Oracle Real-Time Scheduler.

The current release of Oracle Real-Time Scheduler supports a mobile client for laptops running Windows XP or Windows 7, and mobile devices running Windows Mobile 6.5 Professional or Android Mobile 2.3.

Tier 3: Web Application / Business Application Server, or Business Logic Tier

This tier is implemented in a web application or business application 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 Real-Time Scheduler installation documentation assumes that the web application and business application servers reside together.

Tier 4: Database, or Persistence Tier

This tier is implemented in a database server. The database server stores data maintained by the Oracle Real-Time Scheduler 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.

Chapter 3

Supported Platforms and Hardware Requirements

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

- **Software and Hardware Considerations**
- **Requirements by Tier**
- **Supported Platforms**
- **Support for Software Patches and Upgrades**

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 Real-Time Scheduler be deployed?
- On which web server product will Oracle Real-Time Scheduler deploy?
- On which database product will Oracle Real-Time Scheduler deploy?
- Do you plan to deploy multiple Oracle Real-Time Scheduler instances on the same physical server?
- How do you plan to deploy Oracle Real-Time Scheduler?
    - Web/application/database on the same physical server
    - Web/application on one server and database on separate server
    - Each component on its own server

      Note: If you deploy the mobility application and web application on different servers, the log file path should be shared on the network.
- How do you plan to install and update the Oracle Real-Time Scheduler mobile client on the mobile computers or devices?
    - Use a device management software like Oracle Mobile Server for installation and updates.
- How do you plan to secure Oracle Real-Time Scheduler when communicating with devices over unsecured networks like the internet?

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

The final hardware and software decisions must comply with the specific requirements of Oracle Real-Time Scheduler, as described in the rest of this chapter.

Requirements by Tier

The application is deployed on multiple Tiers:

- Tier 1, Desktop
- Tier 2, Mobile Client
- Tier 3, Web/Business Application Server
- Tier 4, Database Server

Tier 1, Desktop: Software and Hardware Requirements

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

* The Recommended configuration will support better performance of the client.

** 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).

Web Browser Requirements

The following operating system / web browser software is supported:

- Windows XP SP3 or higher with Internet Explorer 7.x or 8.x
- Windows 7 (32-bit or 64-bit) with Internet Explorer 8.x
- Java plug-in 1.6.0 17 or above

Tier 2, Mobile Client: Software and Hardware Requirements

The following hardware configuration is supported:

Configuration	Processor	Memory (RAM)
Minimum	Pentium IV - 2.0 GHz	1024 MB

The following Operating Systems are supported by the mobile client:

- Windows XP
- Windows 7 (64-bit)
- Windows Mobile 6.5 Professional
- Android 2.3

Note: This release of Oracle Real-Time Scheduler has been tested on a Motorola MC75 device running Windows Mobile 6.5 Professional, a Panasonic Toughbook 30 running Windows XP SP2, and an HTC Desire device running Android client Mobile 2.3.

Tier 3, Web/Business Application Server: Software and Hardware Requirements

Please consult the **Supported Platforms** on page 3-6 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 application and business servers on the same machine and the system running with 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 environment a minimum of 4 GB of real memory is required, plus 6 GB of swap space.

Disk Space Requirements

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

Location	Size	Usage
$SPLEBASE	5 GB minimum	This location is where the application and Framework get installed. Startup, shutdown and other online log files are stored here. The size and space that is used should be monitored because various debugging options can significantly affect the size of log files.
$SPLAPP	2 GB minimum	This location is used for storing batch log files and output from batch jobs. The size of this space should be influenced by which batches are run and how often, and the amount of debugging information that is collected.
Location of the application web work files on the web servers	1.5 GB minimum	This location is used by the various web server vendors to expand the application. It should be considered when installing these products. Refer to the individual web server documentation to determine the location of the temporary files.
Installation temporary area	4 GB	The application gets installed from this location. You need enough space to uncompress the files and install the application.

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

Tier 4, Database Server: Software and Hardware Requirements

See the section **Supported Platforms** on page 3-6 for supported database servers.

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 **Chapter 6**: **Installing Application Server Prerequisite Software** for more information.

Operating Systems and Application Servers

The following table details the operating system and application server combinations on which Oracle Real-Time Scheduler version 2.1.0 has been tested and certified.

Operating System and Web Browser (Client)	Operating System (Server)	Chipset	Application Server	Database
Windows XP SP3 (IE 7.x, 8.x) Windows 7 (IE 8.x)	AIX 6.1 TL4 (64-bit)	POWER 64-bit	WebLogic 10.3.4	Oracle 11.2.0.1
	Oracle Linux 5.6 (64-bit) Red Hat Enterprise Linux 5.6 (64-bit)	x86_64	WebLogic 10.3.4	Oracle 11.2.0.1
	Sun Solaris 10 Update 8 (64-bit)	SPARC	WebLogic 10.3.4	Oracle 11.2.0.1
	Windows Server 2008 R2 (64-bit)	x86_64	WebLogic 10.3.4	Oracle 11.2.0.1

Platform Changes

Oracle Real-Time Scheduler 2.1.0 no longer requires the Oracle Spatial database option to operate properly. While this release supports Oracle Spatial, additional installation steps have been added which allow the application to run against a database without this option, including Oracle Standard Edition.

Oracle Database Servers

Oracle Real-Time Scheduler version 2.1.0 is supported with Oracle Database Server 11.2.0.1 on all of the operating systems listed above.

The Oracle 11.2.0.1 client is required for this version of the database server.

The following Oracle Database Server Editions are supported:

- Oracle Database Server Standard Edition
- Oracle Database Server Enterprise Edition

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 Real-Time Scheduler 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 Real-Time Scheduler production environment.

The exceptions from this rule are Hibernate software version 3.3.2 ga and the Oracle Client version 11.2.0.1. These versions should not be upgraded.

Always contact Oracle Real-Time Scheduler support prior to applying vendor updates that do not guarantee backward compatibility.

Chapter 4

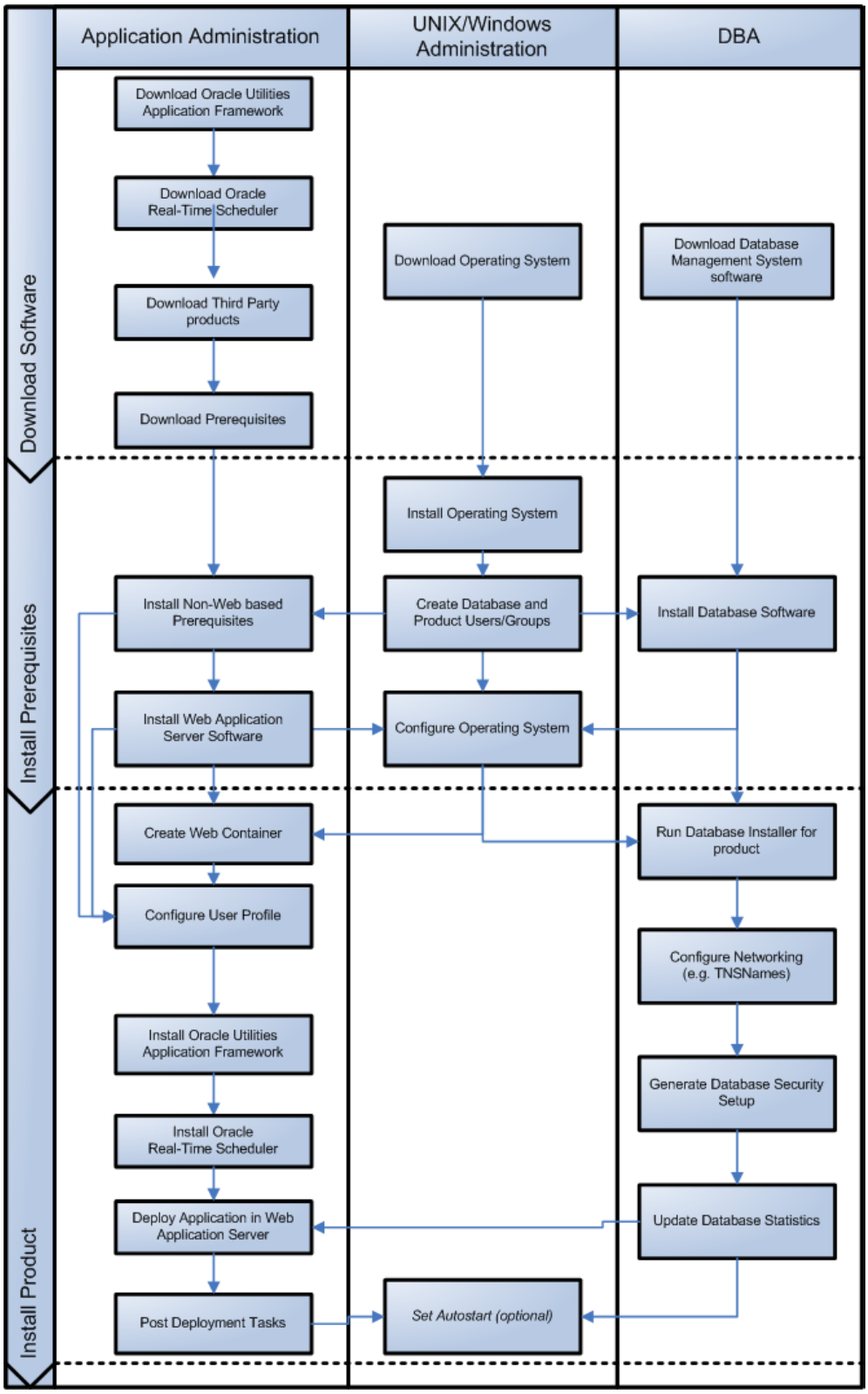
Planning the Installation

This chapter provides information for planning an Oracle Real-Time Scheduler installation, including:

- **Installation and Configuration Overview**
- **Before You Install**
- **Before You Upgrade**
- **Installation Checklist**
- **Prerequisite Third-Party Software Overview**
- **Application Framework Installation and Configuration Worksheets**
- **Oracle Real-Time Scheduler Installation and Configuration Worksheets**

Installation and Configuration Overview

The following diagram provides an overview of the steps that need to be taken to install and configure Oracle Real-Time Scheduler:



Before You Install

Refer to My Oracle Support for up-to-date additional information about installing Oracle Real-Time Scheduler.

Before You Upgrade

The new MCP version control enhancement requires that a certain upgrade process be followed. This is to ensure that no data is lost and no incompatible version issues arise. The upgrade process includes the following steps:

1. All mobile devices should end their shifts and log off.
2. Upgrade the server and all MDTs.
3. Regenerate all deployments.

For more information about this enhancement and upgrade considerations, see Chapter 11, "Deploying the Application to Mobile Devices," in the *Oracle Real-Time Scheduler Configuration Guide*.

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 chapters.

1. Create Group/User ID.
2. Install prerequisite software (see **Prerequisite Third-Party Software Overview** on page 4-3 for more information).
   - Oracle Client 11.2.0.1 (for connecting to Oracle database)
   - Java 6
   - Hibernate 3.3.2
   - JDeveloper 11g (11.1.1.4.0)
   - MapViewer 11.1.1.5.1
   - Map data
   - Oracle BPEL Process Manager 11g (optional)
3. Install web server.
   - Oracle WebLogic 11gR1 (10.3.4)
4. Verify that all software installed.
5. Set up environment variables.
6. Install Oracle Utilities Application Framework.
7. Install Oracle Real-Time Scheduler.
8. Deploy the Oracle Real-Time Scheduler application.
9. Post installation tasks.

Prerequisite Third-Party Software Overview

For complete details about installing and configuring the prerequisite third-party software for your specific platform, see **Chapter 6: Installing Application Server Prerequisite Software**.

Application Framework Installation and Configuration Worksheets

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 an numeric value in the prompt.

When 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 any of the values entered, type <X> and 'Enter'

Installation Menu Functionality Details

The Environment Installation Utility requires that Oracle 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 / cmd is executed, it will read from the ENVIRON.INI file to set the environment variables.

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

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

  Note: The production environment should not be run with default values. See the Oracle Real-Time Scheduler *Server Administration Guide* for additional information about configuring these values.

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

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

The following prompt will appear when executing the installation utility:

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

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

Encryption Methods

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

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

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

Third Party Software Configuration

```
 **********************************
* Environment Installation Options *
**********************************
1. Third Party Software Configuration
       Oracle Client Home Directory:
       Web Java Home Directory:
       Child JVM Home Directory:
       COBOL Home Directory:
       Hibernate JAR Directory:
       ONS JAR Directory:
       Database Home Directory:
       Web Application Server Home Directory:
       ADF Home Directory:
       OIM OAM Enabled Environment:
```

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Oracle Client Home Directory	ORACLE_CLIENT_HOME	The home directory of the Oracle Client. The application will use the Perl included under this Oracle Client. Example Location: /oracle/client/product/11.2.0.1	
Web Java Home Directory	JAVA_HOME	Java home that will be used by the web application server. Example Location: /ouaf/java/jdk1.6.0_20	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Child JVM Home Directory	CHILD_JVM_JAVA_HOME	Java home that will be used by the child java process that handles COBOL related requests. Example Location: /ouaf/java/jdk1.6.0_20 Note: This value is optional for ORS 2.1.0 because it contains no COBOL components. Press Enter to skip this value.	
COBOL Home Directory	COBDIR	COBOL installation location directory. Example Location: /opt/SPLcobAS51WP6 Note: This value is optional for ORS 2.1.0. Press Enter to skip this value.	
Hibernate JAR Directory	HIBERNATE_JAR_DIR	Location on the disk where the hibernate3.jar is installed.	
*ONS JAR Directory	ONS_JAR_DIR	Location on the disk where the ons-11.2.0.2.jar file is installed. **Required for Oracle RAC installation. See the Server Administration Guide for more information.	
Database Home Directory	DATABASE_HOME	Location on the disk where database client is installed for your particular installation. Example Location for Oracle Database: /oracle/client/product/11.2.0.1 Note: This value will be the same as the previously entered for Oracle.	
Web Application Server Home Directory	WEB_SERVER_HOME	Location on the disk where the application server is installed. Example Location: WebLogic: /ouaf/middleware/wlserver_10.3 To validate the home directory, check if the following jar files exist in the appropriate path: $WEB_SERVER_HOME/server/lib/weblogic.jar %WEB_SERVER_HOME%\server\lib\weblogic.jar	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
* ADF Home Directory	ADF_HOME	Location on the disk where ADF is installed. Example Location: /ouaf/jdev11_1_1_4	
OIM OAM Enabled Environment	OPEN_SPML_ENABLED_ENV	Denotes if an environment will be integrating with Oracle Identity Manager for user propagation. Valid values: true false Defaulted value: false	

* Denotes optional Menu Options that may be required for the product installation and variables.

** In order to activate the RAC FCF, the application needs the external ons.jar file, version 11.2.0.2. This ons.jar is located under the Oracle Database Software 11.2.0.2, at the following path:

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

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

Environment Installation Options

```
50. Environment Installation Options
       Environment Mount Point:
       Log Files Mount Point:
       Environment Name:
       Database Type:
       Web Application Server Type:
       Install Application Viewer Module:
```

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Environment Mount Point	<SPLDIR>	The mount point into which the application is installed. For example: /ouaf for UNIX and C:\ouaf for Windows. This mount point MUST exist and the ORS administrator user ID MUST be able to write to this directory. (This is the user ID that is created specifically to administer the (ORS) environments; the default is cissys). The installation sets permissions on all subdirectories installed under this directory. See <SPLENVIRON> below for more information on how this mount point is used.	
Log File Mount Point	<SPLDIROUT>	A mount point that will contain any application output or application logs. Example value is /ouaf/sploutput for UNIX installation or C:\ouaf\sploutput for Windows. This mount point MUST exist and the ORS administrator user ID MUST be able to write to this directory. (This is the user ID that is created specifically to administer the (ORS) environments; the default is cissys). For each environment initialized, the application logs will be written to the directory <SPLDIROUT>/<SPLENVIRON> Note: Later in the installation the splenviron.sh (splenviron.cmd) script will set the $SPLOUTPUT (%SPLOUTPUT%) environment variable to point to:<SPLDIROUT>/<SPLENVIRON>	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Environment Name	<SPLENVIRON>	A descriptive name to be used as both a directory name under the mount point <SPLDIR> and an environment descriptor. This value typically identifies the purpose of the environment. For example, DEV01 or CONV. On installation a directory <SPLDIR>/<SPLENVIRON> is created, under which the Oracle Utilities Application Framework and Oracle Real-Time Scheduler software resides. When multiple environments are set up on the machine you will typically have directories such as: /ouaf/DEV01/.... /ouaf/CONV/.... Each of these contains a complete version of the Oracle Utilities Application Framework and Oracle Real-Time Scheduler. Note: Later in the installation process, the splenviron.sh (splenviron.cmd) script will set $SPLEBASE (%SPLEBASE%) environment variable to point to <SPLDIR>/<SPLENVIRON>	
Database Type	<CMPDB>	Type of a database to connect an environment to. Valid values: oracle: Oracle Defaulted value: oracle Note: Not all database types are supported on all platforms; refer to the Supported Platforms section for details.	oracle
Web Application Server Type	<SPLWAS>	A web application server for the environment to be used. The following value must be selected: Valid values: WLS: WebLogic WAS: WebSphere WASND: WebSphere ND Note: Not all web application servers are supported on all platforms; refer to Supported Platforms section for details.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Installation Application Viewer Module	<WEB_ISAPPVIEWER>	Denotes if the Application Viewer Web Module will be installed in the environment. When this value is set to false the application viewer will not be accessible in the environment. Valid values: true: Application Viewer module will be installed. false: Application Viewer module will not be installed. Defaulted value: true Note: When the value of false is selected, the Application Viewer will only be installed at a later date by a complete reinstall of the application.	

Environment Description

```
1. Environment Description
       Environment Description:
```

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

WebLogic Business Application Server Configuration

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

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

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

WebLogic Web Application Server Configuration

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

```
3. Web Application Server Configuration
      Web Server Host:                                    <machine_name>
      Web Server Port Number:
      Web Context Root:
      WebLogic JNDI User ID:
      WebLogic JNDI Password:
      WebLogic Admin System User ID:
      WebLogic Admin System Password:
      WebLogic Server Name:                                 myserver
      Web Server Application Name:                          SPLWeb
      Application Admin User ID:
      Application Admin Password:
      Expanded Directories:                                 true
      Application Viewer Module:                            true
```

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Server Host	WEB_WLHOST	The host name on which the web application server resides. Default value: <current server name>	
Web Server Port Number	WEB_WLPORT	A unique port number within the system that will be assigned to the HTTP port. This is the port number that is used as a part of the client URL request to connect to the host. Example value: 6500	
Web Context Root	WEB_CONTEXT_ROOT	A context root name that allows customers to run multiple instances of web application on the same server. Default value: ouaf	
WebLogic JNDI User ID	WEB_WLSYSUSER	The user ID the application uses to connect to the EJB component through JNDI. This is the EJB container user ID. Note: Specify the value "system" if you have not already manually created a user in Oracle WebLogic. This is a security value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic JNDI Password	WEB_WLSYSPASS	The password the application uses to connect to the EJB component through JNDI Note: If WebLogic JDNI User ID was set to "system," specify the value of the password as "ouafadmin". This value will be saved in encrypted format. This is a security value.	
WebLogic Admin System User ID	WLS_WEB_WLSYSUSER	The user ID to log in to the Oracle WebLogic console and to administer Oracle WebLogic. The Oracle WebLogic startup and stop script also utilizes this user ID Note: The installation utility will prompt you to enter "Y" to encrypt. If you have not already manually created a user in Oracle WebLogic, enter Y/y and specify a value of "system". This is a security value.	
WebLogic Admin System Password	WLS_WEB_WLSYSPASS	The password to login to Oracle WebLogic console and to administer Oracle WebLogic. The Oracle WebLogic startup and stop script also utilize this password. Note: The installation utility will prompt you to enter "Y" to encrypt. If you have not already manually created a user in Oracle WebLogic, enter Y/y, and specify value of ouafadmin. This is a security value.	
WebLogic Server Name	WEB_WLS_SVRNAME	The name of the WebLogic server where the web application resides. Default value: myserver Note: If there is not a previously created WebLogic server, take default value of "myserver".	
Web Server Application Name	WEB_APP	The name of the web application server. Default value: SPLWeb	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Application Admin User ID	WEB_SPLUSER	This is the default user ID to login to the application through the browser. Example value: SYSUSER Note: The required value for an initial install is "SYSUSER". This value is also used in communication within the XAI application. This is a security value.	
Application Admin Userid Password	WEB_SPLPASS	This is the password of the application admin user. Example value: sysuser00 Note: The required value for an initial install is "sysuser00". This value will be saved in encrypted format This is a Security Value.	
Expanded Directories	WEB_ISEXPANDED	When the value is "true" the web application will be deployed in exploded directory format (no WAR files). When the value is "false", the web application will be deployed in ear file format. Valid values: true: Environment expanded (no WAR files) false: Environment with WAR/EAR files Default value: false	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Application Viewer Module	WEB_ISAPPVIEWER	When the value is "true" the application viewer will be deployed to the web server. When the value is "false", the application viewer will not be deployed to the web Server. Note: With either value the application viewer module will still be managed by the upgrade process. Note: When this value is set to false from the initial install menu you will not be able to change this value to true to re-enable the application viewer. Valid values: true: The application viewer module will be deployed to the web server false: The application viewer module will not be deployed to the web server Default value: true	

Database Configuration

```
4. Database Configuration
       Web Application Database User ID:
       Web Application Database Password:
       MPL Database User ID:
       MPL Database Password:
       XAI Database User ID:
       XAI Database Password:
       Batch Database User ID:
       Batch Database Password:
       Database Name
       Database Server:
       Database Port:
       ONS Server Configuration:
       Database Override Connection String:
      Oracle Client Character Set NLS_LANG:  AMERICAN_AMERICA.AL32UTF8
```

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

Menu Option	Name Used in Documentation	Usage	Customer Install Value
XAI Database Password	XAI_DBPASS	The database password that has been configured on the database for the XAI server connection. Note: This value will be saved in encrypted format. This is a security value.	
Batch Database User ID	BATCH_DBUSER	The database user ID that has been configured on the database for the batch connection. This is a security value.	
Batch Database Password	BATCH_DBPASS	The database password that has been configured on the database for the batch connection. Note: This value will be saved in encrypted format. This is a security value.	
Database Name	DBNAME	The name of the database instance that the application will be connecting to.	
Database Server	DBSERVER	Host name of the server where database resides.	
Database Port	DBPORT	Database port number on the database server used for connecting to the database	
ONS Server Configuration	ONSCONFIG	ONS Server Configuration is required for Oracle RAC FCF. See the Server Administration Guide for more information. This is an optional value.	
Database Override Connection String	DB_OVERRIDE_CONNECTION	This connection string can be used to override the database information entered above for RAC installation. Set this string to override the standard database connection string, as entered above. See the Server Administration Guide for more information. This is an optional value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Oracle Client Character Set NLS_LANG	NLS_LANG	The Oracle Database Character Set. Select the Language and Territory that are in use in your country. Default value: AMERICAN_AMERICA.AL32UTF8	

General Configuration Options

Note: See the Oracle Real-Time Scheduler *Batch Server Administration Guide* for additional details on this configuration.

```
5. General Configuration Options
       Batch RMI Port:
       Batch Mode:                                          CLUSTERED
       Coherence Cluster Name:
       Coherence Cluster Address:
       Coherence Cluster Port:
       Coherence Cluster Mode:                              dev
```

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Batch RMI Port	BATCH_RMI_PORT	Unique port used by the Batch RMI	
Batch Mode	BATCH_MODE	Valid values: CLUSTERED or DISTRIBUTED Default value: CLUSTERED Note: CLUSTERED is currently the only supported mode for production environments.	
Coherence Cluster Name	COHERENCE_CLUSTER_NAME	Unique name for the batch CLUSTER Note: Value is required when batch mode is CLUSTERED.	
Coherence Cluster Address	COHERENCE_CLUSTER_ADDRESS	Unique multicast address. Note: Value is required when batch mode is CLUSTERED.	
Coherence Cluster Port	COHERENCE_CLUSTER_PORT	Unique port for the batch CLUSTER Note: Value is required when batch mode is CLUSTERED.	
Coherence Cluster Mode	COHERENCE_CLUSTER_MODE	Valid values: dev (Development) prod (Production) Default value: dev	

Advanced Menu Options

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

Unix:

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

Windows

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

Advanced Environment Miscellaneous Configuration

```
50. Advanced Environment Miscellaneous Configuration
       Online JVM Batch Server Enabled:                    false
       Online JVM Batch Number of Threads:                 5
       Online JVM Batch Scheduler Daemon Enabled:          false
       JMX Enablement System User ID:
       JMX Enablement System Password:
       RMI Port number for JMX Business:
       RMI Port number for JMX Web:
       GIS Service Running on the same Web Server:         true
       GIS Service URL:
       GIS WebLogic System User ID:
       GIS WebLogic System Password:
       Online Display Software Home:
```

Menu Option	Name Used in Documentation	Usage	Customer Value Install
WebSphere Deployment Manager Host Name	WASND_DMGR_HOST	WebSphere Deployment Manager Host name, this value is used for WebSphere ND, when connecting to the WebSphere Deployment Manager. Note: This value will only appear for WebSphere ND.	
Online JVM Batch Server Enabled	BATCHENABLED	When starting a web application server JVM, this property can be set to "true" to allow the on-line application server to also act as a batch worker in the grid. Default value: false Note: This functionality should only be used in low volume environments.	

Menu Option	Name Used in Documentation	Usage	Customer Value Install
Online JVM Batch Number of Threads	BATCHTHREADS	The maximum number of batch processing threads to be executed within a worker JVM when no explicit Distributed Thread Pool is specified. The "DEFAULT" distributed thread pool is used by the batch-scheduling daemon when it initiates processing on batch jobs (typically added via the online system) where no thread pool is specified). Default value: 5 Note: This will be only used and activated when BATCHENABLED is set to true.	
Online JVM Batch Scheduler Daemon Enabled	BATCHDAEMON	In a distributed batch environment, this property can be set to "true" to allow a worker JVM to host the batch scheduling daemon. The daemon accepts online batch submissions requests and automatically submits the work for them. Valid values: true, false Default value: false Note: This will be only used and activated when BATCHENABLED is set to true.	
JMX Enablement System User ID	BSN_JMX_SYSUSER	Example value: user This value is optional.	
JMX Enablement System Password	BSN_JMX_SYSPASS	Example value: admin Note: This value will be saved in encrypted format. This value is optional.	
RMI Port number for JMX Business	BSN_JMX_RMI_PORT_PERFORMACE	JMX Port for business application server monitoring. This needs to be set to an available port number on the machine. This value is optional.	

Menu Option	Name Used in Documentation	Usage	Customer Value Install
RMI Port number for JMX Web	WEB_JMX_RMI_PORT_PERFORMACE	JMX Port for web application server monitoring This needs to be an available port number for the environment running on the machine. This value is optional.	
GIS Service Running on the same Web Server	GIS	Geographical information (GEOCODING) - GIS Service running on the same web application server Valid values: true, false This value is optional.	
GIS Service URL	GIS_URL	This is the URL of the external web server. Note: This value will be only be used when GIS is set to true. This value is optional.	
GIS WebLogic System User ID	GIS_WLSYSUSER	GIS WebLogic System User ID Note: This value will be only be used when GIS is set to true. This value is optional.	
GIS WebLogic System Password	GIS_WLSYSPASS	GIS WebLogic System Password. Note: This value will be only be used when GIS is set to true. This value is optional.	
Online Display Software Home	ONLINE_DISPLAY_HOME	The location of the Online Display Software installation directory. This value is optional.	

Advanced Environment Memory Configuration

```
51. Advanced Environment Memory Configuration
       JVM Child Memory Allocation:                          512
       JVM Child Additional Options:
       Web Application Java Initial Heap Size:               1024
       Web Application Java Max Heap Size:                   1024
       Web Application Java Max Perm Size:                   700
       Web Application Additional Options:
       Ant Min Heap Size:                                    200
       Ant Max Heap Size:                                    800
       Ant Additional Options:
       Thread Pool Worker Java Min Heap Size:                512
       Thread Pool Worker Java Max Heap Size:                1024
       Thread Pool Worker Java Max Perm Size:                768
       Thread Pool Worker Additional Options:
       Additional Runtime Classpath:
       Release Cobol Thread Memory Options:
-Dspl.runtime.cobol.remote.releaseThreadMemoryAfterEachCall=...
```

Menu Option	Name Used in Documentation	Usage	Customer Install Value
JVM Child Memory Allocation	JVMMEMORYARG	Heap size for the JVM Child. Default value: 512 This option is not applicable to ORS.	
JVM Child Additional Options	JVM_ADDITIONAL_OPT	Additional JVM options that are passed to the Child JVM. Note: For WebLogic installation only. This option is not applicable to ORS.	
Web Application Java Initial Heap Size	WEB_MEMORY_OPT_MIN	Initial heap size for the application server. Default value: 1024 Note: For WebLogic installation only. Recommended value is 2048.	
Web Application Java Max Heap Size	WEB_MEMORY_OPT_MAX	Maximum heap size for the application server. Default value: 1024 Note: For WebLogic installation only. Recommended value is 2048.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Application Java Max Perm Size	WEB_MEMORY_OPT _MAXPERMSIZE	Maximum Perm Size for the application server. Default value: 700MB (Linux, Solaris) 700MB (Windows) Note: For WebLogic installation only.	
Web Application Additional Options	WEB_ADDITIONAL_ OPT	Additional options that will be passed in to the web application server JVM. Note: For WebLogic installation only. Replace the value of SPLEBASE with the actual value. UNIX: -Xrs -XX:+ShowMessageBoxOnError -XX:+UseGCOverheadLimit -Doracle.security.jps.config=SPLEBASE/splapp/config/jps-config.xml -Ddomain.home=SPLEBASE/splapp Windows: -Xrs -XX:+ShowMessageBoxOnError -XX:+UseGCOverheadLimit -Doracle.security.jps.config=SPLEBASE/splapp/config/jps-config.xml -Ddomain.home=SPLEBASE/splapp AIX: -Xrs -XX:+ShowMessageBoxOnError -XX:+UseGCOverheadLimit -Doracle.security.jps.config=SPLEBASE/splapp/config/jps-config.xml -Ddomain.home=SPLEBASE/splapp -Djava.awt.headless=true	
Ant Min Heap Size	ANT_OPT_MIN	Minimum Heap Size passed to ANT JVM. Default value: 200	
Ant Max Heap Size	ANT_OPT_MAX	Maximum Heap Size passed to ANT JVM. Default value: 800	
Ant Additional Options	ANT_ADDITIONAL_ OPT	Additional options that are passed into the ANT JVM.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Thread Pool Worker Java Min Heap Size	BATCH_MEMORY_OPT_MIN	Minimum heap size passed to the Thread Pool Worker. Default value: 512 Recommended value is 1024.	
Thread Pool Worker Java Max Heap Size	BATCH_MEMORY_OPT_MAX	Maximum heap size passed to the Thread Pool Worker. Default value: 1024 Recommended value is 2048.	
Thread Pool Worker Java Max Perm Size	BATCH_MEMORY_OPT_MAXPERMSIZE	Maximum perm size passed to the Thread Pool Worker Default value: 768	
Thread Pool Worker Additional Options	BATCH_MEMORY_ADDITIONAL_OPT	Additional Memory Options passed into the Thread Pool Worker. This is an optional free form field.	
Additional Runtime Classpath	ADDITIONAL_RUNTIME_CLASSPATH	Additional Classpath Options passed in when starting the WebLogic JVM Note: For WebLogic installation only. Replace the value of SPLEBASE with the actual value. Unix: SPLEBASE/splapp/standalone/lib/commons-cli-1.1.jar:SPLEBASE/splapp/standalone/lib/log4j-1.2.15.jar Windows: SPLEBASE/splapp/standalone/lib/commons-cli-1.1.jar;SPLEBASE/splapp/standalone/lib/log4j-1.2.15.jar	
Release Cobol Thread Memory Options	REL_CBL_THREAD_MEM	Allow for child JVMs to be optionally configured to release thread-bound memory when each thread is returned to its thread pool. This will increase the number of memory allocations and memory free calls performed by the Microfocus runtime. It will also lower the amount of C-heap memory consumed by child JVMs. Valid values: true, false Default value: false	

Advanced Web Application Configuration

```
52. Advanced Web Application Configuration
       WebLogic SSL Port Number:
       WebLogic Console Port Number:
       WebLogic Additional Stop Arguments:
       Strip HTML Comments:                                false
       Authentication Login Page Type:                     FORM
       Web Form Login Page:                            /loginPage.jsp
       Web Form Login Error Page:                  /formLoginError.jsp
       Web Security Role:                                  cisusers
       Web Principal Name:                                 cisusers
       This is a development environment:                  false
       Preload All Pages on Startup:                       false
       Maximum Age of a Cache Entry for Text:              28800
       Maximum Age of a Cache Entry for Images:            28800
       JSP Recompile Interval (s):                         43200
```

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

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic Additional Stop Arguments	ADDITIONAL_STOP_WEBLOGIC	WebLogic Additional Stop Arguments This value is required when running the WebLogic Console Port Number and the Application using SSL. Example values: -Dweblogic.security.TrustKeyStore=DemoTrust -Dweblogic.security.TrustKeystoreType=CustomTrust Note: For Production additional actions are required. Do NOT run Production with Demo certificates Refer to the WLS installation guide - Configuring Identity and Trust Note: For WebLogic installation only. This is an optional value. If you enable the WebLogic console port number using the Advanced Web Application Configuration menu, then you should specify the WebLogic additional stop argument.	
StripHTMLComments: false	STRIP_HTML_COMMENTS	Stripping HTML (and JavaScript) comments will increase the security of the system. Default value: false Valid values: true, false	
Authentication Login Page Type	WEB_WLAUTHMETHOD	Specifies which authentication mode should be used. To switch off OUAF Login Page enter: BASIC Valid values: FORM, BASIC Default value: FORM	
Web Form Login Page	WEB_FORM_LOGIN_PAGE	Specify the jsp file used to login into the application. Default value: /loginPage.jsp	
Web Form Login Error Page	WEB_FORM_LOGIN_ERROR_PAGE	Specify the jsp file used when there is an error when logging into the application. Default value: /formLoginError.jsp	

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

Advanced Web Application Configuration

```
53. OIM Configuration Settings
     SPML SOAP Trace Setting:                                false
     SPML IDM Schema Name:                                   F1-IDMUser
     SPML OIM Name Space:      http://xmlns.oracle.com/OIM/provisioning
     SPML OIM Enclosing Element:                             sOAPElement
```

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

Oracle Real-Time Scheduler 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 Oracle Real-Time Scheduler, as described in **Chapter 8: Installing the Application Server Component of Oracle Real-Time Scheduler**. No Customer Install Value fields should be left blank.

> **Note:** Some web application server information will not be available until the software installation steps have been completed as described in **Chapter 6**: **Installing Application Server Prerequisite Software**.

JMS Configuration

```
8. JMS Configuration
   Context Factory:        weblogic.jndi.WLInitialContextFactory
       WebLogic Server URL:
       Weblogic System User ID:
       Weblogic System Password:
       Time Out:                 120000
```

Menu Option	Name Used In Documentation	Usage	Customer Install Value
Context Factory	CONTEXTFACTORY	JNDI Name attribute field when the Connection Factory object is created. When the Connection Factory object is loaded, JNDI provides a path to the object. Default: weblogic.jndi.WLInitialContextFactory	
WebLogic Server URL	URL	Specify weblogic server URL in below format: t3://<host>:<web server port no> NOTE: This is the port number that is used as a part of the client URL request to connect to the host. If you enable the WebLogic console port number using the Advanced Web Application Configuration menu, then specify WebLogic server URL in the following format: t3s://<host>:<weblogic console port number> Otherwise: t3://<host>:<web server port no>	

Menu Option	Name Used In Documentation	Usage	Customer Install Value
Weblogic System User ID	WLS_USERID	User ID to login to Admin WebLogic console. Default user ID: system	
Weblogic System Password	WLS_PASSWORD	On the configuration step of Oracle Real-Time Scheduler install process you have to provide the same password given during Oracle Utilities Application Framework installation. This should only be done if you have changed the password on an existing system following the Oracle WebLogic instructions.	
Time Out	TIMEOUT	JMS Configuration Timeout, in milliseconds. Default:120000	

ORS Environment Description

```
9. ORS Environment Description
      ORS Scheduler Map Files Location:
       Schedule Manager Port Number:
       Minimum Requests:                                    1
       Maximum Time (seconds) Booking Requests:             5
       Unique identifier for
       the instance of the JVM:
      Registry cleanse timing in seconds:                 900
       Scheduler connection timeout in milliseconds     300000
```

Menu Option	Name Used In Documentation	Usage	Customer Install Value
ORS Scheduler Map Files Location	MAPDIR	Location for Map files from where scheduler will read the maps. For example: **Unix:** /ouaf/mapdir **Windows:** C:\ouaf\mapdir	
Schedule Manager Port Number	IPCSTARTPORT	Specify the starting port number on which the application will communicate with the scheduler processes. The application will look for any available port above this number. Default: 9100	
Minimum Requests	MINREQUESTS	Minimum request that scheduler can handle. Default: 1	
Maximum Time (seconds) Booking Requests	MAXPROCESSINGTIM	Maximum request that scheduler can handle. Default: 5	
Unique identifier for the instance of the JVM	NODEID	Unique id for JVM instance. For Example: Node1 Note: This has to be same as the Node ID configured in the Scheduler table in the Oracle Real-Time Scheduler application. This should be left empty if scheduler is going to be run from the standalone batch program.	
Registry cleanse timing in seconds	CLEANSE_INTERVAL	This is the registry cleanse interval. Default: 900	
Scheduler connection timeout in milliseconds	SCHED_CONN_TIMEOUT	Scheduler connection timeout in milliseconds. Default: 300000	

Geocode Data Source Configuration

```
10. Geocode Data Source Configuration
      JDBC URL for the
      Geocode database:
      Database User Name:
      Database Password:
      JNDI name for the
      Geocode datasource:
```

Menu Option	Name used in this Documentation	Usage	Customer Install Value
JDBC URL for Geocode Database	DBURL_GEOCODE	Geocode database information details. For example: jdbc:oracle:thin:@localhost:1521:GEODB	
Database User Name	DBUSER_GEOCODE	Geocode database user ID.	
Database Password	DBPASS_GEOCODE	Geocode database password.	
JNDI name for the Geocode datasource	JNDI_GEOCODE	JNDI name for accessing the database. For example: GEOSAMPLE	

Mapviewer Configuration

```
11. Mapviewer Configuration
       Deploy mapviewer locally on this instance:              true
       Location of mapviewer ear file:
```

Menu Option	Name used in this Documentation	Usage	Customer Install Value
Deploy mapviewer locally on this instance	MAPVIEWER_ISLOCAL	Set this value to true for deploying mapviewer on the same WebLogic instance. Default: true	
Location of mapviewer ear file	MAPVIEWER_EAR	This needs to point to the location of the exploded mapviewer ear directory in case mapviewer is deployed locally on the same Weblogic instance. For example: /ouaf/mapviewer/mapviewer.ear	

Security Configuration

```
                    12. Security Configuration
                          Deploy only mobility web application:                  false
```

Menu Option	Name used in this Documentation	Usage	Customer Install Value
Deploy only mobility web application	MOBILITY_APP_ONLY	Set this value to true to deploy only the mobility web application. This option can be used to expose just the mobility web application to the internet while the rest of the application runs inside a secured environment. Default: false	

Chapter 5

Installing the Database

Please review Chapter 1 of this guide and then follow the steps for installing the database as described in the *Oracle Real-Time Scheduler Database Administrator's Guide*.

Chapter 6

Installing Application Server Prerequisite Software

This chapter describes the software that needs to be installed for each of the supported operating system and application server combinations. The sections for this chapter are:

- **AIX 6.1 Application Server**
- **Oracle Linux 5.6 or Red Hat Linux 5.6 Application Server**
- **Solaris 10 Application Server**
- **Windows 2008 Application Server**

AIX 6.1 Application Server

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

Supported Application Servers

Operating System	Chipsets	Application Server
AIX 6.1 (64-bit) TL4	POWER 64-bit	Oracle WebLogic 11gR1 (10.3.4) 64-bit version

Web/Application Server Tier

AIX 6.1 TL4 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
Oracle Real-Time Scheduler Administrator User ID	cissys	
Oracle Real-Time Scheduler 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 userid 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.
3. Set the stack size limit to 50 MB or more in the user profile startup script for cissys user:

   ```
   ulimit -s 51200
   ```

4. Set the desired hard/soft limit of the file handler to 4096 or higher.

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

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 022 to ensure files created during normal operation have the correct permissions.

Please replace these users and groups for your installation defaults:

User	Group	Description
cissys	cisusr	This user will be used to install the application and to apply patches. This user will own all the application files. The same care should be taken with this user ID as if it is 'root'. This user will be able to add, delete and modify and files within the application.
cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than generated log files
cisoper	-------	Low level operator. This user will only be able to read logs files and collect information for debugging and investigative purposes. Care should be taken in production to disable debugging as debugging information could contain potential sensitive data which this user should not have privy to.

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

Oracle Client 11.2.0.1 — Runtime Option

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

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

IBM Java Software Development Kit version 6.0 SR8 64-bit

Installation of Java is a prerequisite for using Oracle WebLogic as a web application server.

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

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

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

For the Administrator userid (cissys), ensure that the environment variable JAVA_HOME is set up, and that "java" can be found in cissys' PATH variable.

Hibernate 3.3.2

You must install Hibernate before installing Oracle Real-Time Scheduler.

Download the file hibernate-3.3.2.ga.zip (the zip file associated with the 3.3.2 GA release.) from the following link:

http://sourceforge.net/projects/hibernate/files/hibernate3/3.3.2.GA/

It is very important that you download the exact version, as the product has only been certified with this exact release.

You will need to create a permanent directory to place one of the files from hibernate-3.3.2.ga.zip. (e.g., /opt/hibernate).

Extract the file hibernate3.jar into the newly created directory (e.g., /opt/hibernate) from the hibernate-3.3.2.ga.zip zip file.

Oracle WebLogic 11gR1 (10.3.4) 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 11gR1 (10.3.4).

Oracle JDeveloper 11g (11.1.1.4.0) Studio Edition

JDeveloper 11g (11.1.1.4.0) Studio Edition is supported on any platform that runs JDK 6. It requires Oracle Weblogic Server 10.3.4. It must be installed prior to installing the Oracle Utilities Application Framework.

Oracle JDeveloper can be downloaded from following link:

http://www.oracle.com/technology/software/products/jdev/index.html

Oracle MapViewer 11g (11.1.1.5.1)

Oracle Fusion Middleware MapViewer 11g Release 1 (11.1.1.5.1) is a tool that renders maps showing different kinds of spatial data. It can be downloaded from the following link:

http://www.oracle.com/technology/software/products/mapviewer/htdocs/winsoft.html

Oracle BPEL Process Manager 11gR1

Oracle BPEL Process Manager is optional software and is required only for SMS dispatching functionality. Oracle BPEL Process Manager 11gR1 is a component of Oracle SOA Suite 11gR1. The Oracle BPEL Process Manager version is determined by your SMS gateway application. You can download SOA Suite 11gR1 from the SOA Suite download page at the following link:

http://www.oracle.com/technology/products/soa/soasuite/collateral/downloads.html#11g

GCC 4.2.4

GCC 4.2.4 libraries need to be installed for the scheduler functionality to work properly. The following GCC runtime libraries are required to be installed:

- libgcc : GCC compiler dynamic runtime library
- libstdc++ : G++ compiler dynamic runtime library

After installing the GCC runtime libraries, copy the following libraries to <INSTALL_DIR>/runtime directory:

- libstdc++.a
- libgcc_s.a

Alternately, you can add these libraries to LD_LIBRARY_PATH environment variable.

Oracle Linux 5.6 or Red Hat Linux 5.6 Application Server

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

Supported Application Servers

Operating System	Chipsets	Application Server
Oracle Linux 5.6 (64-bit) Red Hat Enterprise Linux 5.6 (64-bit)	x86_64	Oracle WebLogic 11gR1 (10.3.4) 64-bit version

Web/Application Server Tier

Oracle Linux 5.6 or Red Hat Enterprise Linux 5.6 Operating System Running on x86_64 64-bit Architecture

UNIX Administrator User ID

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

Description	Default Value	Customer Defined Value
Oracle Real-Time Scheduler Administrator User ID	cissys	
Oracle Real-Time Scheduler 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 userid 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.
3. Set the stack size limit to 50 MB or more in the user profile startup script for cissys user:

   ```
   ulimit -s 51200
   ```

4. Set the desired hard/soft limit of the file handler to 4096 or higher.

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

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 022 to ensure files created during normal operation have the correct permissions.

Please replace these users and groups for your installation defaults:

User	Group	Description
cissys	cisusr	This user will be used to install the application and to apply patches. This user will own all the application files. The same care should be taken with this user ID as if it is 'root'. This user will be able to add, delete and modify and files within the application.
cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than generated log files
cisoper	-------	Low level operator. This user will only be able to read logs files and collect information for debugging and investigative purposes. Care should be taken in production to disable debugging as debugging information could contain potential sensitive data which this user should not have privy to.

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

Oracle Client 11.2.0.1 — Runtime Option

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

For the cissys user ID, ensure that the environment variable ORACLE_CLIENT_HOME 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 6.0 Update 20 or Later, 64-bit

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

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

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

For the userid 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 3.3.2

You must install Hibernate before installing Oracle Real-Time Scheduler.

Download the file hibernate-3.3.2.ga.zip (the zip file associated with the 3.3.2 GA release.) from the following link:

http://sourceforge.net/projects/hibernate/files/hibernate3/3.3.2.GA/

It is very important that you download the exact version, as the product has only been certified with this exact release.

You will need to create a permanent directory to place one of the files from hibernate-3.3.2.ga.zip. (e.g., /opt/hibernate).

Extract the file hibernate3.jar into the newly created directory (e.g., /opt/hibernate) from the hibernate-3.3.2.ga.zip zip file.

Oracle WebLogic 11gR1 (10.3.4) 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 11gR1 (10.3.4).

Oracle JDeveloper 11g (11.1.1.4.0) Studio Edition

JDeveloper 11g (11.1.1.4.0) Studio Edition is supported on any platform that runs JDK 6. It requires Oracle Weblogic Server 10.3.4. It must be installed prior to installing the Oracle Utilities Application Framework.

Oracle JDeveloper can be downloaded from following link:

http://www.oracle.com/technology/software/products/jdev/index.html

Oracle MapViewer 11g (11.1.1.5.1)

Oracle Fusion Middleware MapViewer 11g Release 1 (11.1.1.5.1) is a tool that renders maps showing different kinds of spatial data. It can be downloaded from the following link:

http://www.oracle.com/technology/software/products/mapviewer/htdocs/winsoft.html

Oracle BPEL Process Manager 11gR1

Oracle BPEL Process Manager is optional software and is required only for SMS dispatching functionality. Oracle BPEL Process Manager 11gR1 is a component of Oracle SOA Suite 11gR1. The Oracle BPEL Process Manager version is determined by your SMS gateway application. You can download SOA Suite 11gR1 from the SOA Suite download page at the following link:

http://www.oracle.com/technology/products/soa/soasuite/collateral/downloads.html#11g

Solaris 10 Application Server

This section describes the software requirements for operating the application using the Sun Solaris 10 application server.

Supported Application Servers

Operating System	Chipsets	Application Server
Solaris 10 Update 8 (64-bit)	SPARC	Oracle WebLogic 11gR1 (10.3.4) 64-bit version

Web/Application Server Tier

Solaris 10 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
Oracle Real-Time Scheduler Administrator User ID	cissys	
Oracle Real-Time Scheduler 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 userid 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.
3. Set the stack size limit to 50 MB or more in the user profile startup script for cissys user:

   ```
   ulimit -s 51200
   ```

4. Set the desired hard/soft limit of the file handler to 4096 or higher.

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

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 022 to ensure files created during normal operation have the correct permissions.

Please replace these users and groups for your installation defaults:

User	Group	Description
cissys	cisusr	This user will be used to install the application and to apply patches. This user will own all the application files. The same care should be taken with this user ID as if it is 'root'. This user will be able to add, delete and modify and files within the application.
cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than generated log files
cisoper	-------	Low level operator. This user will only be able to read logs files and collect information for debugging and investigative purposes. Care should be taken in production to disable debugging as debugging information could contain potential sensitive data which this user should not have privy to.

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

Oracle Client 11.2.0.1 — Runtime Option

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

For the cissys user ID, ensure that the environment variable ORACLE_CLIENT_HOME 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 6.0 Update 20 or Later, 64-bit

This software is only required for Oracle WebLogic installations.

At the time of release, the Oracle Java packages used in the test cycle were downlo aded from:

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

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

For the userid 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 3.3.2

You must install Hibernate before installing Oracle Real-Time Scheduler.

Download the file hibernate-3.3.2.ga.zip (the zip file associated with the 3.3.2 GA release.) from the following link:

http://sourceforge.net/projects/hibernate/files/hibernate3/3.3.2.GA/

It is very important that you download the exact version, as the product has only been certified with this exact release.

You will need to create a permanent directory to place one of the files from hibernate-3.3.2.ga.zip. (e.g., /opt/hibernate).

Extract the file hibernate3.jar into the newly created directory (e.g., /opt/hibernate) from the hibernate-3.3.2.ga.zip zip file.

Oracle WebLogic 11gR1 (10.3.4) 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 11gR1 (10.3.4).

Oracle JDeveloper 11g (11.1.1.4.0) Studio Edition

JDeveloper 11g (11.1.1.4.0) Studio Edition is supported on any platform that runs JDK 6. It requires Oracle Weblogic Server 10.3.4. It must be installed prior to installing the Oracle Utilities Application Framework.

Oracle JDeveloper can be downloaded from following link:

http://www.oracle.com/technology/software/products/jdev/index.html

Oracle MapViewer 11g (11.1.1.5.1)

Oracle Fusion Middleware MapViewer 11g Release 1 (11.1.1.5.1) is a tool that renders maps showing different kinds of spatial data. It can be downloaded from the following link:

http://www.oracle.com/technology/software/products/mapviewer/htdocs/winsoft.html

Oracle BPEL Process Manager 11gR1

Oracle BPEL Process Manager is optional software and is required only for SMS dispatching functionality. Oracle BPEL Process Manager 11gR1 is a component of Oracle SOA Suite 11gR1. The Oracle BPEL Process Manager version is determined by your SMS gateway application. You can download SOA Suite 11gR1 from the SOA Suite download page at the following link:

http://www.oracle.com/technology/products/soa/soasuite/collateral/downloads.html#11g

Windows 2008 Application Server

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

Supported Application Servers

Operating System	Chipsets	Application Server
Windows Server 2008 R2 (64-bit)	x86_64	Oracle WebLogic 11gR1 (10.3.4) 64-bit version

Web/Application Server Tier

Oracle Client 11.2.0.1 — Runtime Option

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

For the cissys user ID, ensure that the environment variable ORACLE_CLIENT_HOME 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 6.0 Update 20 or Later, 64-bit

This software is required for the Oracle WebLogic Installation.

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

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

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

For the userid 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 3.3.2

Hibernate must be installed prior to the installation of Oracle Real-Time Scheduler.

Please download the file hibernate-3.3.2.ga.zip from the following link:

http://prdownloads.sourceforge.net/hibernate/

or from the following link:

http://sourceforge.net/project/showfiles.php?group_id=40712&package_id=127784

It is very important that you download the exact version, as the product has only been certified with this exact release.

You will need to create a permanent directory to place one of the files from hibernate-3.3.2.ga.zip. (e.g. c:\opt\hibernate3.3.2).

Extract the file hibernate3.jar from hibernate-3.3.2.ga.zip.

Oracle WebLogic 11gR1 (10.3.4) 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 11gR1 (10.3.4).

Oracle JDeveloper 11g (11.1.1.4.0) Studio Edition

JDeveloper 11g (11.1.1.4.0) Studio Edition is supported on any platform that runs JDK 6. It requires Oracle Weblogic Server 10.3.4. It must be installed prior to installing the Oracle Utilities Application Framework.

Oracle JDeveloper can be downloaded from following link:

http://www.oracle.com/technology/software/products/jdev/index.html

Oracle MapViewer 11g (11.1.1.5.1)

Oracle Fusion Middleware MapViewer 11g Release 1 (11.1.1.5.1) is a tool that renders maps showing different kinds of spatial data. It can be downloaded from the following link:

http://www.oracle.com/technology/software/products/mapviewer/htdocs/winsoft.html

Oracle BPEL Process Manager 11gR1

Oracle BPEL Process Manager is optional software and is required only for SMS dispatching functionality. Oracle BPEL Process Manager 11gR1 is a component of Oracle SOA Suite 11gR1. The Oracle BPEL Process Manager version is determined by your SMS gateway application. You can download SOA Suite 11gR1 from the SOA Suite download page at the following link:

http://www.oracle.com/technology/products/soa/soasuite/collateral/downloads.html#11g

Chapter 7

Installing the Application Server Component of Oracle Utilities Application Framework

Installing the Oracle Utilities Application Framework is the prerequisite and foundation for installing a framework-based application such as Oracle Real-Time Scheduler. This section describes the process for installing the Oracle Utilities Application Framework, including:

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

Installation Overview

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

1. Make sure that you have installed all the required third-party software as described in **Chapter 6: Installing Application Server Prerequisite Software**.
2. Complete the database installation (refer to the Oracle Real-Time Scheduler *Database Administrator's Guide*).

The application server installation process of Oracle Real-Time Scheduler consists of the following:

1. Installing Oracle Utilities Application Framework
2. Installing Oracle Real-Time Scheduler

As a first step of the application server installation, download and install the framework application server. The installation process creates and configures the application server environment.

Once the Oracle Utilities Application Framework installation is successfully completed and the framework application environment is created, Oracle Real-Time Scheduler can be installed on top of the framework environment.

You can download the installation packages from the 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 section **Supported Platforms**). You must complete the database installation before installing the application server.

Preinstallation Tasks

Hardware and Software Version Prerequisites

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

Database Installation

Verify that the database has been installed and is operational. See Oracle Real-Time Scheduler *Database Administrator's Guide* for more information.

Installation Prerequisites

Chapter 6: Installing Application Server Prerequisite Software describes all preparations that need to be done on the server prior to installing the application server. Please read carefully the server setup requirements and make sure that all prerequisite software is installed and that all required environment variables are set. Correct server setup and proper environment variable settings are an essential prerequisite for successful environment installation.

System Architecture Overview

Oracle Utilities Application Framework V4.1.0 is a decoupled system architecture involving a business service application tier and a web application tier. Typically both will run on the same server, but the design does allow each tier to be installed on separate servers.

The design implements a stateless session bean (EJB technology, under Java EE 6), to provide remote access to service invocations. The root web app, Mobility web app, and XAI web apps can be configured to access service processing locally (as in previous versions), or to make a remote EJB call to perform the service request. In the latter case, the served containers, effectively, run as very thin servlet wrappers around the remote call.

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

Copying and Decompressing Install Media

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

If you are planning to install multiple Oracle Utilities Framework environments operated by different Oracle Utilities Administrator user ids, you must complete each of the following installation steps for each Administrator userid.

1. Log in to the application server host as the Oracle Utilities Framework administrator user ID (default cissys).
2. Create a temporary directory such as c:\ouaf\temp or /ouaf/temp. (Referred to below as <TEMPDIR>.)

   This directory must be located outside any current or other working Oracle Utilities application environment. All files that are placed in this directory as a part of the installation can be deleted after completing a successful installation.
3. Copy the file FW-V4.1.0-MultiPlatform.jar from the delivered package to the <TEMPDIR>. If you are using FTP to transfer this file, remember to use the BINARY option for the FTP transfer.

4. Decompress the file:

   ```
   cd <TEMPDIR>

   jar -xvf FW-V4.1.0-MultiPlatform.jar
   ```

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

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

A sub-directory named "FW.V4.1.0" is created. It contains the installation software for the Oracle Utilities framework application server.

Set Permissions for the cistab File in UNIX

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

The install utility checks permissions and if it identifies a lack of the necessary permissions, it generates a script in the <TEMPDIR>/FW.V4.1.0 directory named cistab_<SPLENVIRON>.sh. Run the generated script using the root account before continuing with the installation process. The script initializes the cistab file in /etc directory (if it is the first Oracle Utilities Framework application environment on the server) and registers a new environment.

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

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

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

Installing Oracle Utilities Application Framework

This section outlines the steps for installing the Application Framework.

Brief Description of the Installation Process

1. Log on as the Oracle Utilities Framework administrator (the default is cissys on UNIX) or as a user with Administrator privileges (on Windows).
2. Configure your application server and any third-party software required for your platform, as outlined in **Chapter 6: Installing Application Server Prerequisite Software**.
3. Change directory to the <*TEMPDIR*>/FW.V4.1.0 directory.
4. Set the Oracle PERL bin directory in path variable.
5. Start the application installation utility by executing the appropriate script:

   UNIX: ksh ./install.sh

   Windows: install.cmd
6. Follow the messages and instructions that are produced by the application installation utility. Use the completed worksheets in the section **Application Framework Installation and Configuration Worksheets** to assist you.
7. Installation of Oracle Utilities Framework Application Server is complete if no errors occurred during installation.

Detailed Description of the Installation Process

1. Log on to the host server as Oracle Utilities Application Framework administrator.

   Logon as cissys (on UNIX) or as a user with Administrator privileges (on Windows)
2. Configure application server and third-party software.

   Complete all steps outlined in **Chapter 6: Installing Application Server Prerequisite Software**. You will need to obtain specific information for the install.
3. Change directory to the <*TEMPDIR*>/FW.V4.1.0 directory and start the application installation utility by executing the appropriate script:

   UNIX: ksh ./install.sh

   Windows: install.cmd
4. On the Environment Installation Options menu, select item 1: Third Party Software Configuration.

   Use the completed Third Party Software Configuration worksheet to complete this step. See **Application Framework Installation and Configuration Worksheets**.
5. Select menu item 50: Environment Installation Options.

   Use the completed Environment Installation Options Worksheet to complete this step. See **Application Framework Installation and Configuration Worksheets**.

   Note: You must create the directory for output (the Log Mount Point). The installation process fails if this directory does not exist.

   - Specify the environment name and the environment directory names for a new installation on a menu screen.
   - Specify the type of the database your environment will be connected to (the default will be Oracle).

- Specify the web application server your environment will run with (the default will be WebLogic).
- Enter **P** to accept the selected options.
- During this step, the specification of a new environment is checked for validity against /etc/cistab and the permissions on mount points and directories.

6. Configure environment parameters.
   - During this step you will configure environment parameters such as web server hosts and ports, database name, and userid.
   - The application installation utility shows default values for some configuration options.
   - Use the completed Environment Configuration Worksheet to assist you.

     Note: Every option requires a value for a successful install. It is important to provide all values.
   - When you are done with the parameters setup, proceed with the option **P. Write Configuration File.**

     All of the options will be written in the following File: $ SPLEBASE/etc/ENVIRON.INI.
   - You will be warned if you did not edit a section. You may proceed if you want to keep the default settings.
   - The application installation utility copies the installation media to a new environment.
     - The installation utility copies the new version software from the temporary installation media directory to the new environment.
     - If any manual or electronic interruption occurs during this step, you can rerun the install utility from the beginning and follow the interactive instructions. The application installation utility is able to recover from such a failure.
   - The application installation utility generates environment configuration parameters:
     - The application installation utility automatically executes the script initialSetup.sh (on UNIX) or initialSetup.cmd (on Windows), located in $SPLEBASE/bin (%SPLEBASE%\bin on Windows) directory. This script populates different application template configuration files with the new environment variables values and completes the rest of the installation steps.
7. Set up environment variables.

   Once the ENVIRON.INI file is created and contains the correct environment parameters, the application installation utility starts a sub shell to the current process by executing the splenviron.sh (on UNIX) or splenviron.cmd (on Windows) script, located in $SPLEBASE/bin (or %SPLEBSE%\etc for Windows) directory. This script sets up all the necessary environment variables and shell settings for the application server to function correctly.

   From this point, a number of environment variables have been set up. Some key ones are:
   - $PATH - an adjustment to $PATH is made so that all of the environment scripts and objects will be in the path.
   - $SPLEBASE (%SPLEBASE%) - stands for <SPLDIR>/<SPLENVIRON> directory
   - $SPLOUTPUT (%SPLOUTPUT%) - stands for <SPLDIROUT>/<SPLENVIRON> directory

     Note: Make sure that this directory exists. Otherwise the installation script will fail.
   - $SPLENVIRON (%SPLENVIRON%) - environment name

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

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

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

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

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

See the chapter **Planning the Installation** for settings and configuration.

Chapter 8

Installing the Application Server Component of Oracle Real-Time Scheduler

This section describes the procedure for installing Oracle Real-Time Scheduler on top of the previously created Oracle Utilities Application Framework environment. This section includes:

- **Preinstallation Tasks**
- **Installing the Application**
- **Security Considerations**
- **Installing User Documentation**
- **Operating the Application**
- **Postinstallation Tasks**

To proceed with the Oracle Real-Time Scheduler 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 Real-Time Scheduler Application product installation. For detailed instructions see **Preparing for the Installation** on page 8-2.

Preinstallation Tasks

This section describes the steps that should be taken before installing Oracle Real-Time Scheduler.

Installing Prerequisite Patches

Oracle Utilities Application Framework patches must be installed prior to installing Oracle Real-Time Scheduler 2.1.0. The patches are available as a convenience rollup, ORS-V2.1.0-FW-PREREQ-Multiplatform.zip, which is included in the downloaded Media Pack. Please refer to the instructions contained inside the rollup directory for steps to install the patches. For a list of the patches that are included in this rollup, see **Appendix A: Application Framework Prerequisite Patches.**

Copying Map files

Copy the Map file to the map file directory <MAPDIR>. For more information, see the Map Editor Installation Guide and Map Editor User's Guide.

Copying and Decompressing Install Media

The installation file is delivered in jar format for both UNIX and Windows platforms.

Oracle Real-Time Scheduler is delivered in a separate installation package for each supported Operating System. Please refer to the **Supported Platforms** on page 3-6 for version and installation details regarding the database and operating system versions. Also see **Chapter 7: Installing the Application Server Component of Oracle Utilities Application Framework** for prerequisite third-party software installation instructions.

Download the installation package for your operating system and proceed as follows:

1. Log in to the host server as the Oracle Utilities Application Framework administrator user ID (default cissys). This is the same user ID that was used to install the Oracle Utilities Application Framework.
2. Create a <TEMPDIR> directory on the host server, which is independent of any current or other working Oracle Real-Time Scheduler application environment. This can be the same <TEMPDIR> used during the installation of the Oracle Utilities Application Framework.
3. Copy the file ORS-V2.1.0-MultiPlatform.jar in the delivered package to a <TEMPDIR> on your host server. If you are using FTP to transfer this file, remember to use the BINARY option for the FTP transfer.
4. Decompress the file:

```
cd <TEMPDIR>
jar -xvf ORS-V2.1.0-MultiPlatform.jar
```

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

For both Unix and Windows platforms, a sub-directory named ORS.V2.1.0 is created. The contents of the installation directory are identical for both platforms. The directory contains the install software for the application product.

Preparing for the Installation

1. Log on as Oracle Real-Time Scheduler Administrator (default cissys).
2. Initialize the Framework environment that you want to install the product into.

   UNIX:

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

Windows:

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

3. Stop the environment if running.

   UNIX:

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

   Windows:

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

Installing the Application

1. Change to the <TEMPDIR>/ORS.V2.1.0 Directory.
2. Execute the script:

   UNIX:

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

   Windows:

   ```
   install.cmd
   ```

   Note: On UNIX, ensure that you have the proper execute permission on install.sh

3. The Oracle Real-Time Scheduler Application specific menu will appear.
4. Select the menu item 8 to configure JMS settings.

   Use the completed JMS Configuration Worksheet to assist you with this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

5. Select the menu item 9 to specify ORS environment description.

   Use the completed ORS Environment Description Worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

6. Select the menu item 10 to configure Geocode Data Source.

   Use the completed Geocode Data Source Configuration Worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

7. Select the menu item 11 to configure MapViewer.

   Use the completed MapViewer Configuration Worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

8. Select the menu item 12 for Security Configuration.

   Use the completed Security Configuration Worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

9. Select the menu item 51 for Advanced Memory Configuration.

   Use the completed Advanced Memory Configuration Worksheet to complete this step. Specify the values for the Web Application Java Initial Heap Size, Web Application Java Max Heap Size, Web Application Java Max Perm Size and Web Application Additional Options. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

10. Select the menu item 52 for Advanced Web Application Configuration.

Use the completed Advanced Web Application Configuration Worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

11. When you are done with the parameter setup, proceed with the option P. Write Configure file.
12. Once the install has finished successfully, you will need to execute postinstallation steps as described in **Postinstallation Tasks** on page 8-5. Also, set security for your application according to the steps described in **Security Considerations** on page 8-4.

Security Considerations

It is critical to secure Oracle Real-Time Scheduler when communicating with mobile devices using unsecured networks like the internet. At a minimum, we recommend exposing only necessary resources for device communication to these networks and only permit communication using HTTPS. Also, it is recommended to insure that the WebLogic console and other web applications intended for intranet-only use are not exposed to the internet.

Whenever possible, HTTP access to the application should be disabled and only HTTPS access should be allowed. It is also advisable to allow access to the WebLogic admin console application through a separate HTTPS admin port that is different from the application port.

For a more secured configuration, only the mobility web application would be deployed on the public or exposed network while the rest of the application would be deployed behind an internal firewall.

Please refer to the Advanced Web Application Configuration options under **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for a list of the security options available when deploying the Oracle Real-Time Scheduler application in a public or exposed network such as a DMZ.

It is also recommended to deploy MapViewer on the same WebLogic server instance so that the user security credentials can be shared. Please refer to the Mapviewer Configuration options in the section **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for the options available for deploying MapViewer on the same WebLogic server instance. Also refer to **Configuring MapViewer** on page 10-2 for the configuration changes required in the MapViewer installation.

Refer to **Oracle Location Services (eLocation)** on page 10-3 for the configuration changes required in the application for eLocation.

Installing User Documentation

This section provides instructions for installing the Oracle Real-Time Scheduler user documentation that is supplied with the system. Oracle Real-Time Scheduler user documentation is provided in PDF format for printing.

The documentation is also provided in HTML format located inside the Oracle Real-Time Scheduler application server installation package. It is automatically installed and can be launched from the user interface. The files are under the applications directory packaged in the file named help.war. User documentation is provided in English (ENG). The documentation material is divided into the following subdirectories underneath the language directory:

- M1: Oracle Real-Time Scheduler User Guide

- F1: Oracle Utilities Application Framework Administration and Business Process Guides

Installing Stand-Alone Online Help

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

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

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

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

Customizing Help for Stand-Alone Operation

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

Installing Stand-Alone Help Under Web Server

You can also install Oracle Real-Time Scheduler online help as a stand-alone web application. You can use any web application server, such as WebLogic. Configure the configuration file for your web application server to use web application help.

For example,

- For WebLogic, configure config.xml file for deployed application Name="help"with URI="help.war" and set WebServer DefaultWebApp="help"

Access the documentation from the browser by the following URL :

http://<host name>:<port name>/<WebContext>/<Lang>/SPLHelp.html

where <hostname>:<portname> is the URL of the web server, <Web Context> is the root web context name specified during web application server configuration, <Lang> is the name of the language directory, for example, ENG.

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

Operating the Application

At this point your installation and custom integration process is complete. Be sure to read the Server Administration Guide for more information on further configuring and operating the Oracle Real-Time Scheduler system.

Postinstallation Tasks

1. Run the Common Dispatch Interface (CDI) deployment script in order to deploy the SPLAdf.ear file on a web server, such as WebLogic

   UNIX:

   ```
   $ cd $SPLEBASE/runtime
   ```

```
$ ksh ./cdfDeploy.sh
```

Windows:

```
C:\> cd %SPLEBASE%\runtime
C:\> cdfDeploy.cmd
```

> **Note:** Whenever you run initialSetup.sh/cmd script to change any configuration (using the configureEnv.sh script), please execute the above script once the initialSetup.sh/cmd has completed successfully.

2. Add the following values for the Web Application Additional Options by selecting menu item 51, Advanced Environment Memory Configuration. Use the completed Advanced Environment Memory Configuration worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31.

   UNIX:

   ```
   -Xrs -XX:+ShowMessageBoxOnError -XX:+UseGCOverheadLimit
   -Doracle.security.jps.config=$SPLEBASE/splapp/config/jps-
   config.xml -Ddomain.home=$SPLEBASE/splapp
   ```

   Windows:

   ```
   -Xrs -XX:+ShowMessageBoxOnError -XX:+UseGCOverheadLimit
   -Doracle.security.jps.config=%SPLEBASE%/splapp/config/jps-
   config.xml -Ddomain.home=%SPLEBASE%/splapp
   ```

3. Run the initialSetup script.

   UNIX:

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

   Windows:

   ```
   C:\> cd %SPLEBASE%\bin
   C:\> initialSetup.cmd
   ```

4. Apply prerequisite single fixes. These are in the Oracle Real-Time Scheduler V2.1.0 Single Fix Prerequisite Rollup, which is included in the 'Application-Server-Multiplatform' file.

   > **Note:** Refer to the README.txt file in the rollup for more details.

   Change to the directory where ORS-V2.1.0-Multiplatform-Rollup.jar was extracted, and run the following command:

   UNIX:

   ```
   $ ksh ./installSFgroup.sh
   ```

   Windows:

   ```
   C:\> installSFgroup.cmd
   ```

5. Run the postinstall script.

   UNIX:

   ```
   $ cd $SPLEBASE/runtime
   $ ksh ./ ORS_postinstall.sh
   ```

If you get permission errors while running this script, run the following command to set the permissions, then repeat the above step.

```
chmod -Rf 755 *
```

Windows:

```
C:\> cd %SPLEBASE%\runtime
C:\> ORS_postinstall.cmd
```

6. Start up the environment by running the following command:

   UNIX: spl.sh start

   Windows: spl.cmd start

   Follow the messages on the screen along with the logs in $SPLSYSTEMLOGS directory to ensure that the environment was started successfully.

   If the startup failed, identify the problem by reviewing the log files. Resolve any issues before attempting to restart the environment.

   You should postpone the startup process until you are done with postinstallation steps.

   Use the following utility to stop the environment:

   UNIX: spl.sh stop

   Windows: spl.cmd stop

Chapter 9

Installing the Mobile Client

This section describes how to install the Mobile Client for Oracle Real-Time Scheduler. It is intended for implementers and system administrators responsible for configuration and initial setup of the mobile application.This section includes:

- **Installing the Mobile Client on Windows**
- **Installing the Mobile Client on Android**

Installing the Mobile Client on Windows

This section describes how to install the Oracle Real-Time Scheduler Mobile Client Runtime on Windows Platforms. This section includes:

- **Installing on Windows XP or Windows 7**
- **Installing on Windows Mobile**
- **Mobile Device Registration**
- **Uninstalling the Mobile Client**

Installing on Windows XP or Windows 7

1. Extract OracleMWM.msi from ORS-V2.1.0-Mobile-Client-Win.zip and copy it to a temporary directory. Double click the OracleMWM.msi file to start the installation process.
2. Click **Next** to proceed with the installation of Oracle Real-Time Scheduler 2.1.0 Mobile Client on your machine.
3. Select a folder/hard drive location to install the application to.
4. Click **Next** to proceed with the installation.
5. Click **Close** after the installation is successful.

The mobile client application is now accessible from shortcuts created on the Desktop or Start Menu.

Installing on Windows Mobile

1. Extract OracleMWM.CAB from ORS-V2.1.0-Mobile-Client-WinMobile.zip and copy it to a temporary directory on the mobile device. Tap the OracleMWM.CAB file to start the installation process.
2. If prompted, select **Device** as the location to be installed.
3. Click **Close** after the installation is successful.
4. After completing the MCP installation, delete the CAB file (OracleMWM.CAB) and reboot the mobile device.

The mobile client application is now accessible from shortcuts created on the **Start > Programs** menu.

Mobile Device Registration

The mobile device needs to be registered with the Oracle Real-Time Schedulerapplication server before it can start using the application features. Ensure that the Oracle Real-Time Scheduler application is installed and running before registering the mobile device.

Please refer to the *Oracle Real-Time Scheduler Mobile Application User Guide* for the steps to register a device with the server.

Uninstalling the Mobile Client

Follow these procedures to remove the Mobile Client from Windows XP or Windows Mobile.

Uninstalling from Windows XP or Windows 7

1. Ensure that all the data is synchronized on the server.
2. Go to **Start Menu -> Control Panel**.

3. Open **Add or Remove Programs.**
4. Select Oracle Real-Time Scheduler 2.1.0 from the programs list and click **Remove**.
5. Click **Yes** to confirm the removal of the mobile client.
6. Click **Close** after the mobile client has been removed.

Uninstalling from Windows Mobile

1. Ensure that all the data is synchronized on the server.
2. Go to Start **Menu** -> **Settings** -> **System** tab
3. Open **Remove Programs**.
4. Select Oracle Real-Time Scheduler 2.1.0 from the programs list and click **Remove**.
5. Click **Yes** to confirm the removal of the mobile client.
6. Click **Close** after the mobile client has been removed.

Installing the Mobile Client on Android

This section describes how to install the Android Mobile Client Platform (Android MCP) for Oracle Real-Time Scheduler. It is intended for implementers and system administrators responsible for configuration and initial setup of the mobile application. This section includes:

- **Overview of the Android MCP**
- **Installing the Android MCP**
- **Launching Android MCP**
- **Launching Android MCP Tools**
- **Uninstalling Android MCP**

Overview of the Android MCP

Android MCP provides the same runtime functionality as the Windows Mobile and Windows XP MCP. This functionality includes:

- **RSI:** Communication between the device and the server
- **GPS:** GPS services such as location logging and transferring logs to the server
- **BO Processing:** Business Object Functionality
- **BS Processing:** Business Service Functionality
- **SS Processing:** Service Script Functionality
- **Authentication:** Login processing
- **UI Rendering:** User Interface Processing
- **Logging:** Log File Support

There may be differences in UI layout or JavaScript support due to the different browser component provided by the Android platform. There will also be normal differences in the user interface behavior that are specific to Android applications.

Installing the Android MCP

The Android MCP is delivered as a standard Android APK file. This APK will need to be installed to the Android device in one of the following ways.

- Using SD Card
- Downloading the file from a hosted web server
- Using device management software for Android
- Using Android SDK (Advanced only)

This document will describe the SD Card method only.

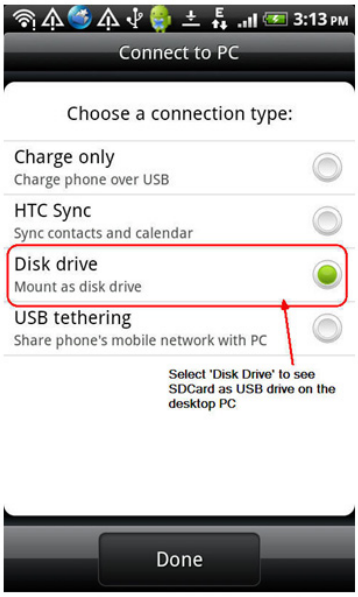
> **Note:** You should uninstall previous versions of the Android MCP before installing a new version.

Installing the MCP Using the SD Card Method

Use the following procedure to install Android MCP using the SD Card method.

1. Extract OracleMWM.apk from the ORS-V2.1.0-Mobile-Client-Android.zip file and copy it to a temporary directory.

2. Connect the Android device to a desktop or laptop computer as a USB Drive.

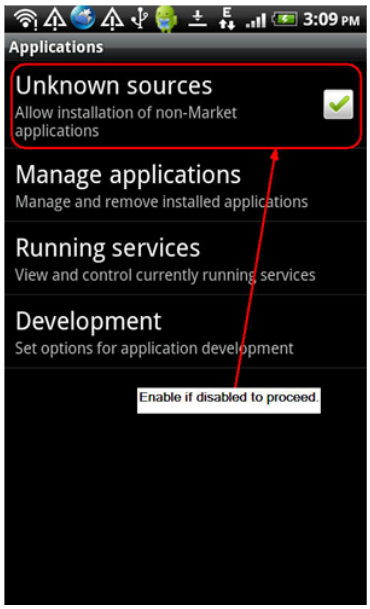


3. Copy the OracleMWM.apk file to the removable disk (select **My Computer** for the drive letter).

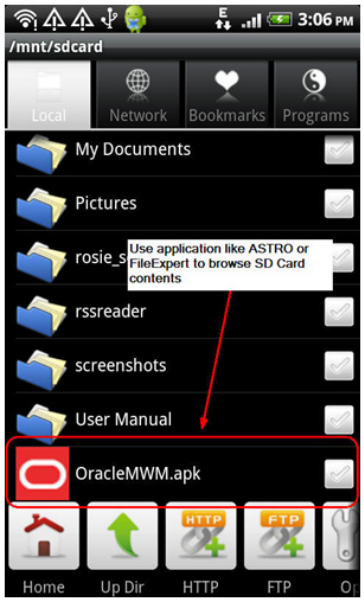
4. Disconnect the device from the desktop or laptop, or choose the **Charge only** connection type.

5. Verify that non-Market applications can be installed.

   Open **Settings, Applications** and select **Unknown sources.**



6. Use a file explorer on the device such as ASTRO or File Expert (which can be downloaded from Android Market) to locate the APK file on the SD card. Launch the file.



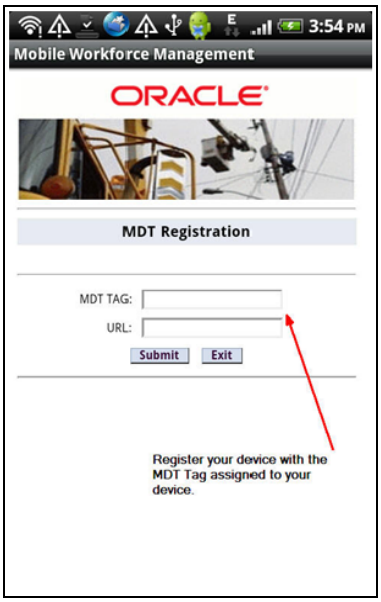
7. Confirm the installation by clicking **Install**.
8. The application will now be installed.
9. After the application is installed, click **Done.**

Launching Android MCP

Use the following procedure to launch Android MCP on your device.

1. Under All apps, locate the Oracle MWM icon.
2. Launch the application to register the device and download a deployment.

   Note: Ensure that your device has data or WIFI connectivity.



Launching Android MCP Tools

The MCP Tools application provides functionality to import and export the MCP data folder to and from the SD card on the Android device. This can be very useful in debugging issues or for loading test data to the device.

Use the following procedure to launch the Android MCP Tools Application on your device.

1. Under All apps, locate the Oracle MWM Tools icon.

2. Launch the application to access import and export functionality.

   - **Export Data** exports the application's data folder to SD Card.
   - **Import Data** imports data from SD card's /MWMApp/ folder into the application's data folder.

Uninstalling Android MCP

Use the following procedure to uninstall the Android MCP.

1. Open **Settings, Applications, Manage Applications** and click the Oracle MWM application.
2. Click **Uninstall** to remove Android MCP from your device. Do not select **Clear data.**

Chapter 10

Additional Tasks

This section describes tasks that should be completed after installing Oracle Real-Time Scheduler, including:

- **Configuring MapViewer**
- **Oracle Location Services (eLocation)**
- **Configuring the Environment for Oracle BPEL Server**
- **Configuring the Scheduler**
- **Configuring Business Service SDK**
- **WebLogic Production Server Considerations**
- **Building Javadoc Indexes**
- **Configuring the Environment for Batch Processing**
- **Customizing Configuration Files**
- **Customizing the Logo**
- **Generating the Application Viewer**

Configuring MapViewer

This section describes how to configure a MapViewer data source for Oracle Real-Time Scheduler.

Before you can configure a MapViewer data source you must:

- Install Oracle Fusion Middleware MapViewer 11.1.1.5.1.
- Create and configure the database.

To configure a MapViewer data source:

1. Go to the MapViewer Application:

   Example: http://<host>:<port>/mapviewer

   Where <host> is the host name or IP address of the system where MapViewer is deployed. and <port> is the port of the WebLogic instance. If MapViewer is deployed on the same WebLogic instance then this is same as the application port.

2. Click the **Admin** button to log in as an administrator to MapViewer.
3. Click **Manage Map Viewer**, then **Configuration.**
4. Modify mapViewerConfig.xml using the Config text area.

   a. Provide the data source details for the cisadm and NAVTEQ_UTIL data sources. The following code sample contains example data sources. Change the properties according to your data sources:

   ```
   <!-(Sample datasource configuration)
     <map_data_source name="mvdemo"
         jdbc_host="db1.my_corp.com"
         jdbc_sid="orcl"
         jdbc_port="1521"
         jdbc_user="scott"
         jdbc_password="!tiger"
         jdbc_mode="thin"
         number_of_mappers="3"
         allow_jdbc_theme_based_foi="false"
      />
   ```

   b. If the secure protocol (HTTPS) is enabled for the MapViewer URL, add the following to the **Map Image Settings** section of mapViewerConfig.xml:

   ```
   <save_images_at  file_prefix="omsmap"
         url="https:// <host>:<port>/mapviewer/images"
         path="../../images"
         life="0"
         recycle_interval="480"
   />
   ```

   Where <host> is the host name or IP address of the system where MapViewer is deployed and <port> is the port of the WebLogic instance.

5. Click **Save and Restart**.
6. To refresh the list of data sources, click **Manage Map Viewer**, then **Data sources.**
7. To confirm that the configuration is correct, click **Manage Map Tile Layers**.

Configuring MapViewer Security

When MapViewer is deployed on the same WebLogic instance as the application, follow these steps to configure MapViewer to share the security credentials of the application.

1. Add the following entry in the weblogic.xml file under <MAPVIEWER_EAR_DIR>/web.war/WEB-INF:

```
 <security-role-assignment>
   <role-name>cisusers</role-name>
   <principal-name>cisusers</principal-name>
</security-role-assignment>

<session-descriptor>
   <cookie-path>/mapviewer</cookie-path>
</session-descriptor>
```

2. Add the following entry in the web.xml file under <MAPVIEWER_EAR_DIR>/web.war/WEB-INF:

```
<security-role>
   <description>MapViewer users</description>
   <role-name>cisusers</role-name>
</security-role>
```

Oracle Location Services (eLocation)

This section describes how to configure and deploy Oracle Location Services (eLocation) for use by Oracle Real-Time Scheduler. This is required if your implementation chooses to use eLocation for routing data instead of Oracle Real-Time Scheduler.

The installation of eLocation requires the following components

- eLocation Dispatcher Servlet (elocation.ear)
- Oracle RouteServer (routeserver.ear)
- Oracle Geocoder (geocoder.ear)

To configure eLocation:

1. Download the elocation.ear file.

   To download the latest elocation.ear, log on to My Oracle Support at support.oracle.com and download Patch 13446793, "SPATIAL elocation for Mobile Workforce Management Release 12."

   Oracle RouteServer and Oracle Geocoder are included with the Oracle 11g database in the following directory: ORACLE_HOME\md\jlib

2. When eLocation is deployed on the same WebLogic instance as the application, follow these steps to configure eLocation to share the security credentials of the application.

   a. Add the following entry in the weblogic.xml file, located under <ELOCATION_EAR_DIR>/web.war/WEB-INF:

   ```
   <security-role-assignment>
   <role-name>cisusers</role-name>
   <principal-name>cisusers</principal-name>
   </security-role-assignment>
   ```

   b. Add the following entry in the web.xml file, located under <ELOCATION_EAR_DIR>/web.war/ WEB-INF:

   ```
   <security-role>
   <description>SPL users</description>
   <role-name>cisusers</role-name>
   </security-role>
   ```

3. Deploy and configure the routing engine and the geocoding service as described in the Oracle Spatial Developer's Guide 11g.
4. Deploy the eLocation EAR manually using the WebLogic console. Open the eLocation URL at: http://<environment>:<port>/elocation/admin.jsp

   The application will ask for login credentials because the web.xml and weblogic.xml files have changed. Once the login is successful, you will see the Oracle eLocation Administration page.
5. To modify the Mapper Cluster, click **Edit** on the component URL. Specify the following value:

   <http://<environment>:<port>/mapviewer/omsserver>.

   Make sure that MapViewer is also deployed in the environment.
6. To modify the Geocoder Cluster, click **Edit** on the component URL. Specify the following value:

   < http://elocation.oracle.com/geocoder/gcserver>
7. To modify the Router Cluster, click **Edit** on the component URL. Specify the following value:

   http://elocation.oracle.com/routeserver/servlet/RouteServerServlet
8. Click **Apply Changes.**

Configuring the Environment for Oracle BPEL Server

Oracle BPEL Process Manager is optional software that can be used by Oracle Real-Time Scheduler for sending SMS messages. Oracle Real-Time Scheduler can be configured to send SMS via different third party gateway/SMS providers. The ability to send SMS using the Oracle BPEL Server is already provided in the base application

This section describes how to configure the Oracle Real-Time Scheduler to interact with Oracle BPEL Server.

Before configuring Oracle Real-Time Scheduler to interact with BPEL Server you must:

- Install Oracle BPEL Server.
- Configure Oracle Real-Time Scheduler with a process that receives phone numbers and messages deployed on the BPEL server.

Oracle Real-Time Scheduler uses the algorithm type F1-SMSSEND to connect to the Oracle BPEL server.

The following information will be required to set up the application to work with the BPEL server:

Option Type	Detail Description
Operation Name	The 'operation' or the method name of the SMS Web service
Password	The password for the Web service
Port Type	The 'port type' name of the SMS Web service
Server URL	The url of the BPEL/SMS gateway server
Service Name	The 'service' name of the SMS Server

Option Type	Detail Description
User Name	The 'user name' for authentication to the Web service

Configuring the Scheduler

This section describes how to configure a scheduler as a standalone application on the TPW JVM.

After installing Oracle Real-Time Scheduler or Oracle Real-Time Scheduler V2.1.0, please verify that the below step1 and step 2 changes are available or not. If they are not available, follow the below steps:

1. Verify that the wlfullclient.jar file is in the following directory:

   <Web Logic Home>/wlserver_10.3/server/lib

   If the file is not there, generate the file by following the instructions in **Building the wlfullclient.jar File Using ANT** on page 10-6. Place the file in the above directory. The batch scheduler scripts use this jar in their classpath.

2. If you enabled the WebLogic Console Port Number, then the WebLogic console is accessed by https admin channel by default. Specify "t3s://<host>:<admin channel port>" as the WebLogic Server URL in menu item 8, JMS Configurations. Otherwise, specify "t3://<host>:<web server port>".

   See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for more information.

3. Configure trust keystore as WebLogic Additional Stop Argument using menu item 52 Advanced Web Application Configuration. **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for more information.

4. Run the initialSetup script.

   UNIX:

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

   Windows:

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

5. Run the standalone batch script. For example

   UNIX:

   ```
   $ cd $SPLEBASE/bin
   $ nohup batchscheduler.sh <Node_ID> > /tmp/batchscheduler.log 2>&1
&
   ```

   Windows:

   ```
   cd %SPLEBASE%\bin
   batchscheduler.cmd <Node_ID>
   ```

   Notes:

   - The application domain node ID must be unique value across the environment. This value is used for a scheduler running from Threadpoolworker.

- The scheduler should be disabled from the online application. The batch scheduler program invokes Threadpoolworker so there is no need to start Threadpoolworker separately.
- The NodeID is located in the threadpoolworker logs under $SPLOUTPUT. You can locate this value by searching for "NODEID".
- To locate the NodeID in the threadpoolworker process, search for the string "-Dspl.mwm.scheduler.nodeId="

You will get multicast issues in an AIX environment if you start the batch scheduler and the multicast listener is not enabled. The workaround for this is to enable a unicast listener. See the Oracle Real-Time Scheduler *Batch Server Administration Guide* for more details.

To enable the unicast listener:

1. Copy the file $SPLEBASE/splapp/standalone/config/tangosol-coherence-override.xml to tangosol-coherence-override.xml.org
2. Remove the following code in the tangosol-coherence-override.xml file:

```
<multicast-listener>
      ---------------------
      ---------------------
      </multicast-listener>
```

3. Add the following code after the </member-identity> tag in the tangosol-coherence-override.xml file:

```
<unicast-listener>
<well-known-addresses>
<socket-address id="0">
<address system-property=
"tangosol.coherence.wka">COHERENCE_CLUSTER_HOSTNAME</address>
<port system-property=
"tangosol.coherence.wka.port">COHERENCE_CLUSTER_PORT</port>
</socket-address>
</well-known-addresses>
<address system- property=
"tangosol.coherence.localhost">COHERENCE_CLUSTER_HOSTNAME
</address>
<port system-property=
"tangosol.coherence.localport">COHERENCE_CLUSTER_PORT</port>
<port-auto-adjust system-property=
"tangosol.coherence.localport.adjust">true</port-auto-adjust>
</unicast-listener>
```

4. Select the menu item 5 and General Configuration Options. Use the completed General Configuration Options Worksheet to complete this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for more information.
5. Run initialSetup and start the batch scheduler.

See **Common Batch Scheduler Tasks** on page 10-7 for additional information.

Building the wlfullclient.jar File Using ANT

To build the wlfullclient.jar file:

1. Place the following build.xml file in WebLogic Installations Server/lib directory. (For example: /spl/Middleware/WLS_10.3.4/wlserver_10.3/server/lib.)

```
<project name="JarBuilder" default="run">
<property name="bea.home" value="/spl/Middleware/WLS_10.3.4"/>
<property name="wl.home" value="${bea.home}/wlserver_10.3"/>
```

```
<path id="main.class.path">
<pathelement path="${bea.home}/modules/
com.bea.core.utils_1.9.0.0.jar"/>
<pathelement path="${bea.home}/modules/
com.bea.core.jarbuilder_1.6.0.0.jar"/>
<pathelement path="${java.class.path}"/>
</path>
<target name="run">
<echo message="***ANT Script should run from inside the ${wl.home}/
server/lib **" />
<echo message="***** ********* ********* *****" />
<java classname="com.bea.jarbuilder.JarBuilder">
<classpath refid="main.class.path"/>
<jvmarg value="-d ${wl.home}/server/lib -jar wljarbuilder.jar"/>
</java>
</target>
</project>
```

2. Modify the Properties defined in the ANT script according to your Installation directory:

```
<property name="bea.home" value="/spl/Middleware/WLS_10.3.4?/>
<property name="wl.home" value="${bea.home}/wlserver_10.3?/>
```

   Note: Change the com.bea.core.utils_1.9.0.0.jar and com.bea.core.jarbuilder_1.6.0.0.jar file names, if there are any version conflicts.

3. Login to $SPLEBASE and run the following command:

```
/spl/Middleware/WLS_10.3.4/wlserver_10.3/server/bin/ setWLSENV.sh
```

   Unix:

```
cd $SPLEBASE
Run  /spl/Middleware/WLS_10.3.4/wlserver_10.3/server/bin/
     setWLSENV.sh
```

   Windows:

```
cd %SPLEBASE%
Run C:\spl\Middleware\WLS_10.3.4\wlserver_10.3\server\bin\
    setWLSENV.sh
```

4. Change the directory to "/spl/Middleware/WLS_10.3.4/wlserver_10.3/server/lib" folder :

```
#> cd /spl/Middleware/WLS_10.3.4/wlserver_10.3/server/lib
#>ant
```

5. When the ant script has executed successfully, the file wlfullclient.jar is generated in the following directory: /spl/Middleware/WLS_10.3.4/wlserver_10.3/server/lib

Common Batch Scheduler Tasks

To Start the Batch Scheduler:

Unix:

```
cd $SPLEBASE/bin
nohup batchscheduler.sh NodeID > /tmp/batchscheduler.log 2>&1 &
```

Windows:

```
cd %SPLEBASE%\bin
batchscheduler.cmd NODEID
```

To Stop the Batch Scheduler:

Unix:

```
spl.sh -b stop
```

Windows:

```
cd %SPLEBASE%
spl.cmd -b stop
```

> **Note:** If scheduler processes are still running, you can kill the running processes manually. You can identify the scheduler processes by their image name, "smauto".

To Check the Batch Scheduler is running or not:

Unix:

```
spl.sh -b check
```

Windows:

```
cd %SPLEBASE%
spl.cmd -b check
```

Configuring the Batch Scheduler for Different Servers

This section describes how to configure the batch scheduler to point to a different application server, or "target server". The target server has to be installed following the same steps as described for installing Oracle Real-Time Scheduler or Oracle Utilities Mobile Workforce Management. These steps can also be followed to run the batch scheduler(s) from a different box from the target server. In the following steps, substitute the appropriate values for the environment.

To configure the scheduler to point to a different target server:

1. Install Oracle Real-Time Scheduler application.
2. Stop the environment if running.

   UNIX:

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

   Windows:

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

3. In the application menu, select the menu item 8 to configure JMS settings. Enter the menu items for the target server. Use the completed JMS Configuration Worksheet to assist you with this step. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for more information.
4. Select the menu item 9 to specify ORS environment description and enter the menu items for the target server. Use the completed ORS Environment Description Worksheet to complete this step.See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for more information.
5. Verify that the wlfullclient.jar file is in the following directory: <Web Logic Home>/wlserver_10.3/server/lib. If it is not, generate the file by following the instructions in **Building the wlfullclient.jar File Using ANT** on page 10-6. The batch scheduler scripts use this jar in their classpath.
6. Enter the WebLogic Console Port Number for the target server using menu item 52 Advanced Web Application Configuration. See **Oracle Real-Time Scheduler Installation and Configuration Worksheets** on page 4-31 for more information.
7. Run the initialSetup script:

   UNIX:

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

Windows:

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

8. Run the standalone batch scheduler script, which now points to the target server. See **Common Batch Scheduler Tasks** on page 10-7 to start and stop the batch scheduler.

Configuring Business Service SDK

For details about configuring business service SDK, see the *Oracle Real-Time Scheduler Configuration Guide*.

WebLogic Production Server Considerations

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

Configuring Identity and Trust

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

To configure identity and trust for a server:

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

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

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

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

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

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

Building Javadoc Indexes

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

Windows:

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

UNIX:

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

Configuring the Environment for Batch Processing

See the Oracle Real-Time Scheduler*Batch Server Administration Guide* for information on configuring the environment for batch processing.

Customizing Configuration Files

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

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

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

You will need to follow the procedure:

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

  UNIX: $SPLEBASE/bin/genupdatewar.sh

  Windows: %SPLEBASE%\bin\genupdatewar.cmd

Customizing the Logo

To replace the Oracle Utilities logo on the main menu with another image, put the new image <customer_logo_file>.gif file into the directory $SPLEBASE/etc/conf/root/cm and create a new "External" Navigation Key called CM_logoImage. To do that, run the Oracle Utilities application from the browser with the parameters: http://<hostname>:<port>/cis.jsp?utilities=true&tools=true. From the Admin menu, select Navigation Key. Add the above Navigation Key with its corresponding URL Override path. The syntax for the URL path is:

Windows:

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

UNIX:

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

The root directory may be deployed in war file format for runtime environment (SPLApp.war). Use provided utilities to incorporate your cm directory into SPLApp.war file.

Generating the Application Viewer

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

To generate the additional items in the application viewer:

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

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

   Unix:

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

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

   and

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

   To initialize the environment enter:

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

   For example:

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

   Windows:

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

   In the below example you should replace the following variables:

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

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

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

   For example:

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

3. Execute the following script to generate all information.

   UNIX:

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

   Windows:

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

4. Restart your application

Appendix A

Application Framework Prerequisite Patches

Oracle Utilities Application Framework patches must be installed prior to installing Oracle Real-Time Scheduler 2.1.0. The patches listed below are available as a convenience rollup, ORS-V2.1.0-FW-PREREQ-Multiplatform.zip, which is included in the downloaded Media Pack. Please refer to the instructions contained inside the rollup directory for steps to install the patches.

8503140	10357429	11061063	11802524	12355589
8901782	10357830	11065275	11805029	12357553
9042555	10359905	11065841	11810803	12358078
9382171	10360341	11066173	11812272	12369181
9387114	10360688	11068621	11825658	12369294
9411693	10363621	11068834	11825757	12375706
9455478	10363763	11070215	11825763	12377282
9527752	10366259	11071551	11826984	12380588
9540205	10367747	11074152	11827061	12388252
9564113	10367860	11077044	11828290	12388695
9569173	10368770	11078114	11829323	12390834
9618908	10371591	11659316	11831954	12394303
9682934	10374208	11659469	11831962	12396557
9704052	10374359	11671144	11836696	12397361
9712702	10374799	11673372	11837168	12398660
9728543	10375560	11675596	11838963	12401741
9803711	10375660	11676685	11838977	12404368
9808306	10375682	11677625	11840470	12412886
9822605	10376226	11684041	11844142	12415869
9943141	10376879	11684640	11844499	12417483
10014729	10380556	11686129	11846353	12417960

10073615	10382474	11686789	11848622	12428239
10133277	10383911	11687677	11849058	12432357
10179538	10385291	11688966	11865125	12432996
10189618	10387212	11689021	11870260	12536674
10215092	10390304	11689086	11870708	12537292
10222412	10391114	11689155	11875008	12539014
10235438	10391578	11689215	11875029	12546120
10235446	10393148	11690177	11880325	12546220
10235453	10397029	11691074	11881465	12548444
10235472	10399041	11691830	11882316	12548945
10240362	10399826	11691896	11882984	12556076
10263033	10400934	11694867	11886308	12558316
10271480	10401066	11698997	11886487	12560045
10281572	10403427	11699913	11888040	12561191
10281995	10407066	11700127	11888244	12564985
10283802	10411296	11700177	11890627	12564994
10289114	10411845	11703071	11893511	12565011
10289228	10412102	11706217	11894700	12567535
10296970	10413137	11708221	11896216	12574075
10297667	10413650	11709380	11897375	12578692
10301578	10413698	11711736	11900153	12584797
10304568	10416888	11712334	11900457	12593383
10306334	10419736	11713020	11903828	12632749
10311204	10419846	11714753	11904426	12680209
10312418	10420485	11714946	11930834	12703227
10314476	10422028	11718025	11935491	12774795
10314612	10424407	11718917	11935602	12844738
10316317	10428600	11724144	11937218	12874623
10316391	10428634	11725991	11937452	12875351
10316953	10435878	11729096	12327094	12932177
10318333	10623053	11731141	12327124	12938862
10321540	10624363	11735128	12329849	12958675
10321550	10625431	11735716	12337775	13089263
10322062	10625739	11738085	12338323	13089288

10324881	10631948	11739404	12340553	13337860
10325215	10632029	11742563	12344492	13341098
10326258	10636556	11742578	12344520	12824646
10327827	10638783	11744412	12354548	12833920
10329860	10639236	11785204	12355193	12861580
10330794	10639817	11790352	12355336	12877756
10334495	10640366	11791685	12355345	12975725
10334505	10647519	11793264	12355355	13399762
10335027	10649131	11800924	12355359	13339778
10356504	11055998	11800964	12355545	12888985
10356860	11056031	11802408	12355578	

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6. classycle.1.1.jar
7. commons-beanutils-core-1.8.1.jar
8. commons-cli-1.1.jar
9. commons-codec-1.4.jar
10. commons-collections-3.1.jar
11. commons-fileupload-1.2.1.jar
12. commons-httpclient-3.0.1.jar
13. commons-io-1.3.2.jar
14. commons-lang-2.2.jar
15. ehcache-1.2.3.jar
16. log4j-1.2.15.jar
17. qdox.1.6.1.jar
18. serializer-2.7.1.jar
19. stax2.jar
20. velocity.1.4.jar
21. wstx-asl-3.2.1.jar
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