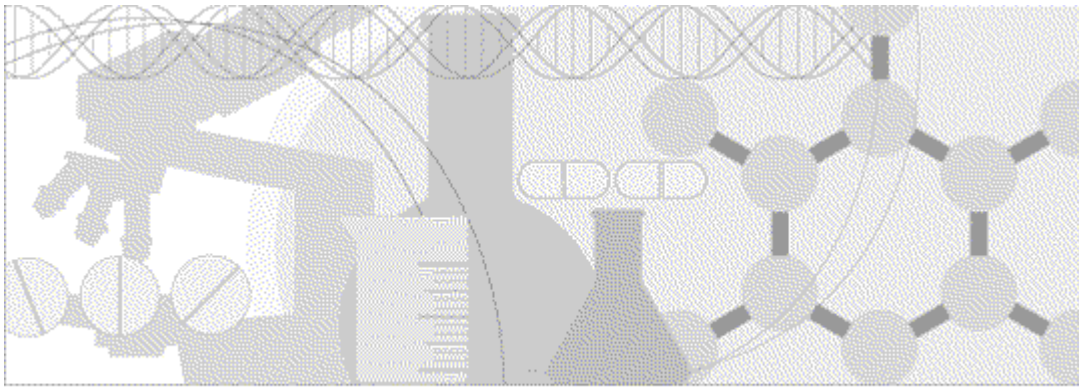


# Installation and Upgrade Instructions

Oracle<sup>®</sup> Health Sciences Empirica Signal 8.1.0.2



**ORACLE<sup>®</sup>**

Part number: E84237-01

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**CHAPTER 1**

**Product overview**

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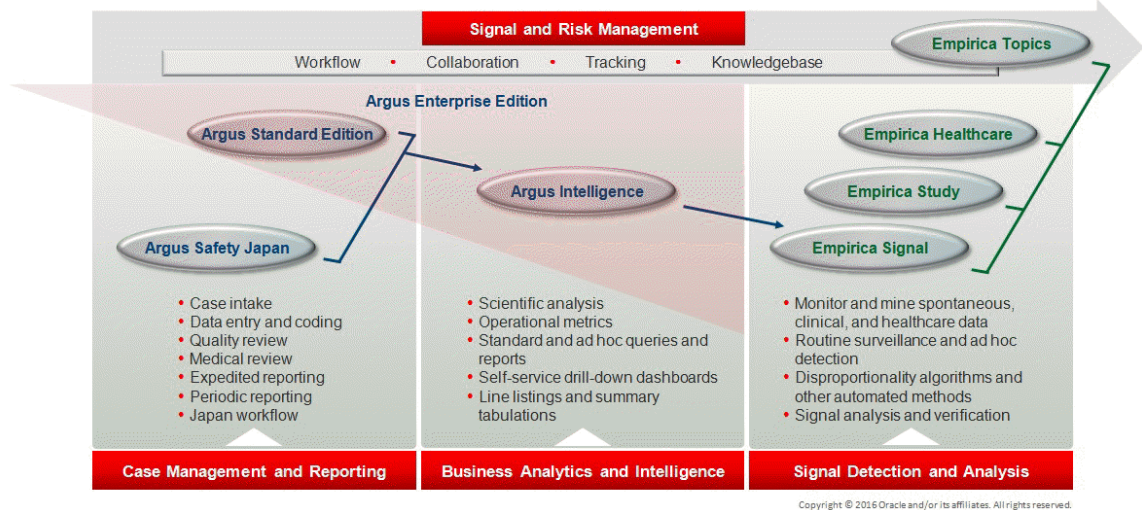
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# The Oracle® Health Sciences Safety Suite

This product is part of the Oracle® Health Sciences Safety Suite, an integrated solution for end-to-end pharmacovigilance from adverse event management to signal management, through the entire lifecycle of a medicinal product from clinical trials to post-marketing surveillance.

## Oracle Health Sciences Safety Suite Integrated Solution for End-to-End Vigilance Through the Entire Product Lifecycle



The Oracle® Health Sciences Safety Suite consists of the following components:

- **Oracle Argus Standard Edition:** Manage and report adverse events through a workflow including case intake, data entry, coding, quality review, medical review, expedited reporting, and periodic reporting. Modules include Oracle Argus Safety, Oracle Argus Interchange, Oracle Argus Affiliate, Oracle Argus Dossier, and Oracle Argus Unblinding.
- **Oracle Argus Enterprise Edition:** In addition to managing the adverse event workflow and reporting, employ a powerful and flexible business analytics and intelligence platform for both scientific analysis and operational metrics. Modules include Oracle Argus Analytics, Oracle Argus Insight, Oracle Argus Mart, Oracle Argus Safety, Oracle Argus Interchange, Oracle Argus Affiliate, Oracle Argus Dossier, Oracle Argus Unblinding, and the Oracle® Health Sciences Adverse Event Integration Pack for Oracle® Health Sciences InForm and Oracle Argus.
- **Oracle Argus Safety Japan:** Manage and report adverse events in Japan, and connect the global and local workflows using a single database.
- **Oracle® Health Sciences Empirica Topics:** Manage and document safety signals through a workflow including validation, prioritization, assessment, confirmation/refutation, and resulting actions.
- **Oracle® Health Sciences Empirica Study:** Detect and analyze safety signals in clinical trial data including adverse events, clinically significant labs, electrocardiograms, vital signs, and shifts from baseline.
- **Oracle® Health Sciences Empirica Signal:** Detect and analyze safety signals in post-marketing spontaneous adverse reaction data including public health authority databases and/or private in-house databases such as Oracle Argus.



- **Oracle® Health Sciences Empirica Healthcare Analysis:** Evaluate safety signals in healthcare data including electronic medical records and administrative claims, and support pharmacoepidemiology, comparative effectiveness analysis, and health economics and outcomes research.

For more information on Argus Safety, visit the Oracle® Health Sciences Safety Suite page at:

<http://www.oracle.com/goto/pharmacovigilance/index.html>

# Introduction to the Empirica Signal software

The Empirica Signal software is a web-based analysis environment for generating statistical scores for combinations of drugs and events in a drug safety database, and for detecting unexpected associations of drugs and events (signals).

# Assumptions

This guide assumes familiarity with the following activities:

- Setting Linux file permissions.
- Administering Oracle WebLogic Server.
- Configuring Linux services.
- Setting up and configuring the Oracle Database software.

## Physical configuration options

The Empirica Signal software is typically installed in a two-tier configuration, using separate database server and application server machines. The provisioning and basic setup of the two systems is outside the scope of this document.

## Components of the installation package

The installation package contains the following components.

File	Description
Signal_Install-8_1_0_2_XXX.tar.gz	Components for installing the Empirica Signal software.
Signal-8_1_0_2_XXX.zip	Build that you install, where XXX is the build number.
Signal-8_1_0_2_XXX-Database.zip	Scripts for setting up the Empirica Signal database account.
TopicsService-8_1_0_2_XXX.zip	Components for installing the Empirica Topics software.
RGPS_8_1_0_2_XXX.tar.gz	RGPS add-on package for R.
Data_Stub.zip	Components for installing the small data account needed for Empirica Signal standard reports.
Signal-8_1_0_2_XXX-OBIEE.zip	Components for configuring Oracle Business Intelligence for Topics reporting.
Update_AM_8_0_for_Signal_8_1_0_2_XXX.zip	Scripts for upgrading Argus Mart 8.0 for use by Empirica Signal 8.1.0.2.
Argus_Prep_2_0_0_0_YYY.zip	Scripts for installing Argus Signal Management.
IQ_Test.doc	Document for installation qualification information.
OQ_Test.doc	Document for operational qualification information.
UQ_Test.doc	Document for upgrade qualification information.



## CHAPTER 2

# Planning your installation

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## How to use this document

This document contains the procedures that guide you through both the installation and upgrade processes.

Sections that are installation-specific or upgrade-specific are labeled as such. Procedures without installation-specific or upgrade-specific labels are applicable to all upgrades and installations.

If you are upgrading from release 8.1 or 8.1.0.1 to release 8.1.0.2, proceed to *Upgrading from release 8.1 or 8.1.0.1 to 8.1.0.2* (on page 77).



## Prerequisites for upgrading (upgrade only)

You can upgrade from release 7.3, 8.0, 8.1 or 8.1.0.1 to release 8.1.0.2 of the Empirica Signal software.

If you are running a release that is earlier than 7.3, you must upgrade to release 7.3 before upgrading to release 8.1.0.2. For information on upgrading to release 7.3, see the *Installation and Upgrade Instructions* for release 7.3.

If you are upgrading from release 8.1 or 8.1.0.1 to release 8.1.0.2, proceed to ***Upgrading from release 8.1 or 8.1.0.1 to 8.1.0.2*** (on page 77).

## Migrating the database (upgrade only)

If you are migrating your database from Microsoft Windows to Linux, or upgrading from an earlier version of the Oracle Database to version 12c, back up your database first. Work with a database administrator to migrate the contents of your database to a Linux system.

## Preparing the environment on the application server for installation or upgrade

Before you install the Empirica Signal software, prepare the application server by performing the procedures described in *Getting the application server ready for the Empirica Signal application with WebLogic 12c* (on page 95) or *Getting the application server ready for the Empirica Signal application with WebLogic 11g* (on page 111).

**Note:** Oracle recommends using WebLogic 12.1.3 and Java 1.8 with Empirica Signal 8.1.

## Information to collect before you begin

- Before you begin, collect the following information about the setup of the database and application servers. You will need this information for the installation or upgrade.

### Database server

- TNSNAMES entry for the database.
- Service name and SID for the database.

**Note:** In Oracle database 12c, the service name might be for a pluggable database.

- system and sys password for the database.
- Time zone setting of your database so you can set the Oracle WebLogic Server instance to the same time zone.

**Note:** Oracle recommends using the UTC time zone for both servers.

- The location of the data files for the instance, if you plan to create the tablespaces in the same location. For example:
  - `u01/app/oracle/oradata/<sid>/'`

For installations, be prepared to provide passwords for the Empirica Signal and `empirica_admin` database accounts that will be created in these steps. If you are installing Topics, also be prepared to provide a password for the `topic_workflow` database account that will be created.

For upgrades, be prepared to provide the passwords for the existing Empirica Signal database account. Also be prepared to provide a password for the `empirica_admin` database account that will be created. If you have Topics installed, also be prepared to provide the password for the existing `topic_workflow` database account.

### Application server

- JDK installation location, such as:

`/usr/java/jdk1.8.x_xx`

or

`/usr/java/jdk1.7.x_xx`

**Note:** Oracle recommends using Java 1.8 and WebLogic 12.1.3.

- The following information about the Oracle client:

- Oracle base location, such as:

`/u01/app/oracle`

- Oracle home location, such as:

`/u01/app/oracle/product/12.1.0`

- The following information about WebLogic:
  - Installation location, such as:
    - `/u01/app/oracle/Middleware`
    - or
    - `/u01/app/oracle/product/fmw12c/`
  - URL for the WebLogic Server Administration Console, such as:
    - `https://<servername>:7002/console`
  - URL for Oracle Enterprise Manager, such as:
    - `https://<servername>:7002/em`
  - User name and password of a WebLogic Server administrator.
- For single sign-on (SSO) installations, the following information:
  - Native login port number to use for initially changing the Empirica Signal admin password.
  - Port number used for normal SSO Empirica Signal connections on the server.
  - SSO logout URL.
  - SSO header, which contains the user name.
  - Session timeout value for the single sign-on setup in the organization.



## CHAPTER 3

# Preparing the application server

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## Required privileges for the database server

You must have access to a user account that allows the user to start and stop the Oracle database.

This account should not have sudo privileges.

This document refers to this user account as the non-privileged user account on the database server.



## Required privileges for the application server

You must have access to the following accounts on the application server:

- A user account that allows the user to start and stop the Empirica Signal Oracle WebLogic Server instance.

This account should not have sudo privileges.

This document refers to this user account as the non-privileged user account on the application server.

Unless otherwise specified in this document, the non-privileged user should perform all activities.

- A user account that has sudo privileges. This user executes certain steps as root.

This document refers to this user account as the privileged user account on the application server.

## Setting the default file creation umask

**Note:** If you are upgrading from Empirica Signal 8.0 using the same application server, skip this section.

You modify the default file creation umask so that by default, users in your group have read-only access to files you create. Users outside your group have no access to the files you create.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to your home directory, for example:

```
$ cd ~
```

- 2 Using a text editor, open the **.login** file.

- 3 Add the following command to the file:

```
umask 027
```

- 4 Save and close the file.

# Unpacking the installation files into the installation directory

The installation directory stores Empirica Signal components during the installation process.

Perform these steps using the non-privileged user account on the application server.

**Note:** If you have previously installed Empirica Signal 8.0 on the same application server, before executing the steps below, rename the old `Signal_Install` directory. For example, change its name to `Signal_Install_old`.

- 1 Unpack the **Signal\_Install-8\_1\_0\_2\_XXX.tar.gz** file into a directory that is accessible to the WebLogic software, for example:

```
$ cd /u01/stage
$ tar xvf /u01/stage/Signal_Install-8_1_0_2_XXX.tar.gz
```

The `/u01/stage/Signal_Install` directory is created.

**Note:** In this document, `<INSTALL_DIR>` refers to the directory created in this step. The document assumes that you are installing to this directory.

- 2 Unpack the **Signal-8\_1\_0\_2\_XXX.zip** file:
  - a Unpack the contents of the **Signal-8\_1\_0\_2\_XXX.zip** file into the directory, for example:
 

```
$ unzip Signal-8_1_0_2_XXX.zip -d /u01/stage/Signal_Install/Signal
```
  - b Provide non-privileged account the execute permission on the **MGPS** subdirectory, for example:
 

```
$ chmod u+x /u01/stage/Signal_Install/Signal/WEB-INF/classes/MGPS
```
- 3 If you use Empirica Topics, unpack the **TopicsService-8\_1\_0\_2\_XXX.zip** file into the **TopicsService** subdirectory in the installation directory, for example:
 

```
$ unzip TopicsService-8_1_0_2_XXX.zip -d /u01/stage/Signal_Install/TopicsService
```
- 4 Unpack the **Signal-8\_1\_0\_2\_XXX-Database.zip** file:
  - a Create a **Database** directory:
 

```
$ mkdir /u01/stage/Database
```
  - b Unpack the contents of the **Signal-8\_1\_0\_2\_XXX-Database.zip** file into the directory, for example:
 

```
$ unzip Signal-8_1_0_2_XXX-Database.zip -d /u01/stage/Database
```

## Adding the database TNSNAMES entry

You add an entry to the **tnsnames.ora** file on the application server to configure the connection to the Oracle database.

If your **tnsnames.ora** file does not contain an entry for the database server, perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the **<ORACLE\_HOME>/network/admin** directory, for example:  

```
$ cd <ORACLE_HOME>/network/admin
```
- 2 If the **tnsnames.ora** file does not exist in the directory, create the file.  
For more information, see the *Oracle Database Online Documentation*.
- 3 Using a text editor, open the **tnsnames.ora** file.
- 4 Add an entry that points to the database server using information from the **tnsnames.ora** file on the database server.

**Note:** In this document, **<TNS\_NAME>** refers to the name you assigned in the entry created in this step.

## Setting up the application database account (installation only)

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `/u01/stage/Database` directory, for example:

```
$ cd /u01/stage/Database
```

- 2 Review the `1_create_webvdme_tablespace_linux.sql` file:

- a Using a text editor, open the `1_create_webvdme_tablespace_linux.sql` file, for example:

```
$ vi 1_create_webvdme_tablespace_linux.sql
```

- b Locate the `datafile_path` variable.

- c To create Empirica Signal data files in a location other than the default location of your database, specify the location as the value of the `datafile_path` variable, for example:

```
DEFINE datafile_path = '/u01/app/oracle/oradata/<sid>
```

**Note:** The path must end in a forward slash (/).

- d Save and close the file.

- 3 Create the Signal tablespace:

- a Execute the `1_create_webvdme_tablespace_linux.sql` script as the Oracle `system` user, for example:

```
$ sqlplus system@<TNS_NAME> @1_create_webvdme_tablespace_linux.sql
```

A password prompt appears.

- b Type the Oracle `system` account password.

- 4 Create the Empirica Signal database user account and schema:

- a At the SQL\*PLUS prompt, execute the `2_create_webvdme_oracle_user.sql` script as the Oracle `sysdba` user:

```
$ sqlplus sys@<TNS_NAME> as sysdba @2_create_webvdme_oracle_user.sql
```

A password prompt appears.

- b Type the Oracle `sys` account password.

A second password prompt appears.

- c Type a password for the Empirica Signal database account.

- d Retype the password.

**Note:** You use the password in a later step.

A third password prompt appears.

- e Type a password for the `empirica_admin` account.

- f Retype the password.

- 5 Populate the application schema:

- a At the SQL\*PLUS prompt, execute the **3\_create\_all.sql** script as the Empirica Signal database user, for example:

```
$ sqlplus webvdme@<TNS_NAME> @3_create_all.sql
```

A password prompt appears.

- b Type the Empirica Signal database account password that you created in a previous step.

## Setting up the Topic Workflow database account (optional, installation only)

You create a Topic Workflow tablespace and user account to enable the Empirica Topics feature. Do not perform this procedure if you do not use Empirica Topics.

For more information, see the *User Guide and Online Help*.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `/u01/stage/Database` directory, for example:

```
$ cd /u01/stage/Database
```

- 2 Create the **topic\_workflow** database user account:

- a Start SQL\*PLUS.

- b Execute the **create\_topics\_oracle\_user.sql** script as the Oracle **system** user, for example:

```
$ sqlplus system@<TNS_NAME> @create_topics_oracle_user.sql
```

A password prompt appears.

- c Type the Oracle **system** account password.

A second password prompt appears.

- d Type a password for the **topic\_workflow** database account.

- e Retype the password.

**Note:** You use the password in a later step.

- 3 Create sample topic tables:

- a Execute the **create\_sample\_topics\_tables.sql** script as the **topic\_workflow** database user, for example:

```
$ sqlplus topic_workflow@<TNS_NAME> @create_sample_topics_tables.sql
```

A password prompt appears.

- b Type the **topic\_workflow** account password that you specified in a previous step.

- 4 Create sample topics:

- a Execute the **populate\_sample\_topics\_tables.sql** script as the **topic\_workflow** database user, for example:

```
$ sqlplus topic_workflow@<TNS_name> @populate_sample_topics_tables.sql
```

You are prompted to type a password.

- b Type the **topic\_workflow** account password that you specified in step 2.

## Setting up the test data database account (installation only)

This procedure is optional.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `/u01/stage/Database` directory, for example:

```
$ cd /u01/stage/Database
```
- 2 If the **TEST\_IQOQ** database account exists, drop the account:
  - a Start SQL\*PLUS.
  - b Execute the **drop user** command as the **system** user, for example:

```
$ sqlplus system@<TNS_NAME>
```

A password prompt appears.
  - c Type the Oracle system account password.

```
SQL> drop user TEST_IQOQ cascade;
```
  - d Exit SQL\*PLUS.
- 3 Create the **test\_iqoq** database user account and tables:
  - a Execute the `4_create_test_iqoq_oracle_user.sql` script as the Oracle **system** user, for example:

```
$ sqlplus system@<TNS_NAME> @4_create_test_iqoq_oracle_user.sql
```

A password prompt appears.
  - b Type the Oracle **system** account password.  
A second password prompt appears.
  - c Type a password for the **TEST\_IQOQ** database account.
  - d Retype the password.

**Note:** You use the password in a later step.

- 4 Populate the **TEST\_IQOQ** tables:
  - a Execute the `5_populate_test_iqoq.sql` script as the **TEST\_IQOQ** database user, for example:

```
$ sqlplus TEST_IQOQ@<TNS_NAME> @5_populate_test_iqoq.sql
```

A password prompt appears.
  - b Type the **TEST\_IQOQ** database account password.



# Applying upgrade scripts to Empirica Signal 7.3 or 8.0.x schemas (upgrade only)

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the **Database** directory, for example:

```
$ cd /u01/stage/Database
```

- 2 If you are upgrading from version 7.3.3.3/4/5 to 8.1.0.2:

- a Execute the **update\_7\_3\_3\_3\_to\_8\_0.sql** script as the Empirica Signal database user, for example:

```
$ sqlplus webvdme@<TNS_NAME> @update_7_3_3_3_to_8_0.sql
```

A password prompt appears.

- b Type the Empirica Signal database account password.

- c Review the **disabled\_userlist.txt** file in the current directory.

The file contains user names for accounts that are locked out of the application due to excessive failed login attempts.

- d After the upgrade is complete, you may log in to the Empirica Signal application and disable these users. For more information, see the *User Guide and Online Help*.

- e Create the **empirica\_admin** account:

- f Execute the **create\_dbadmin\_user.sql** script as the Oracle **sys** user, for example:

```
$ sqlplus sys@<TNS_NAME> as sysdba @create_dbadmin_user.sql webvdme
```

A password prompt appears.

- g Type the Oracle **sys** account password.

A second password prompt appears.

- h Type a password for the **empirica\_admin** account.

- i Retype the password.

After a few moments, the script is completed.

- j Type **exit** to change user accounts.

- k To complete the schema upgrade to version 8.0, perform the following command:

```
$ sqlplus system@<TNS_NAME> @update_proxy_authentication.sql webvdme
```

- l When prompted, type the Oracle system account user password.

- m After the script completes, type **exit**.

- n If you use the Topics feature, update the Empirica Topics schema:

- Execute the **update\_twc\_7\_3\_3\_3\_to\_8\_0.sql** script as the **topic\_workflow** user, for example:

```
$ sqlplus topic_workflow@<TNS_NAME> @update_twc_7_3_3_3_to_8_0.sql
```

A password prompt appears.

- Type the **topic\_workflow** account password.

A prompt for the Empirica Signal database account appears.

- Type the name of the Empirica Signal database account. For example, *webvdme*.

- 3 As the Empirica Signal database user, execute the **update\_8\_0\_to\_8\_1.sql** script to update the schema from 8.0 to 8.1, for example:

- For Empirica Signal 8.0:

```
$ sqlplus webvdme@<TNS_NAME> @update_8_0_to_8_1.sql
```

A password prompt appears.

- 4 Type the Empirica Signal database account password.

**Note:** If you upgrade from Empirica Signal 8.0.1, an error message appears when ALTER TABLE PASSWORD\_HISTORY is attempted, because the column being added already exists in the table. This is expected behavior and can be ignored.

# Installing unlimited strength encryption Java libraries

**Note:** Oracle recommends using WebLogic 12.1.3 and Java 1.8. If you are upgrading from Empirica Signal 8.0 and you have decided to not use WebLogic 12.1.3 with Java 1.8, skip this section.

You install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files to extend the security features in Java.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the **jre/lib/security** directory within your Java installation. For example:

```
$ cd /usr/java/jdk1.8.x_xx/jre/lib/security
```

- 2 Create a backup copy of the following files in another directory:

- **local\_policy.jar**
- **US\_export\_policy.jar**

- 3 Download the **jce\_policy-8.zip** file:

- a In an Internet browser, navigate to the Java SE Downloads website. For example:

```
http://www.oracle.com/technetwork/java/javase/downloads/index.html
```

- b In the Additional Resources table, locate the **Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files for JDK/JRE 8** entry.

- c Click **Download** for the entry.

The Download page appears.

- d Select **Accept License Agreement**.

A confirmation message appears.

- e Download the **jce\_policy-8.zip** file to a temporary directory.

- 4 Navigate to the directory that contains the **jce\_policy-8.zip** file.

- 5 Unpack the **jce\_policy-8.zip** file. For example:

```
$ unzip jce_policy-8.zip
```

The **UnlimitedJCEPolicyJDK8** subdirectory is created. The subdirectory contains the following files:

- **README.txt**
- **local\_policy.jar**
- **US\_export\_policy.jar**

- 6 Navigate to the **UnlimitedJCEPolicyJDK8** subdirectory.

- 7 Copy the **local\_policy.jar** and **US\_export\_policy.jar** files to the **jre/lib/security** directory within your Java installation. For example:

```
$ cp -f *.jar /usr/java/jdk1.8.x_xx/jre/lib/security/
```

- 8 Verify that the file permissions on the **local\_policy.jar** and **US\_export\_policy.jar** files are set to **rw-r--r-- (644)**.

## Installing MGPS

Install the MGPS program that supports Multi-item Gamma Poisson Shrinker (MGPS) data mining. For more information, see the *User Guide and Online Help*.

The MGPS file is included with the Empirica Signal installation files.

Perform these steps using the non-privileged user account on the application server.

- 1 Create a **bin** directory to store the **MGPS** file, for example:

```
$ mkdir -p /u01/app/oracle/product/Signal/bin
```

- 2 Navigate to the **<INSTALL\_DIR>/Signal/WEB-INF/classes** directory, for example:

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```

- 3 Copy the **MGPS** file to the **/bin** directory, for example:

```
$ cp MGPS /u01/app/oracle/product/Signal/bin
```

- 4 Verify that the non-privileged user account on the application server has execute permissions on the **MGPS** file.

```
$ chmod u+x /u01/app/oracle/product/Signal/bin/MGPS
```

**Note:** Remember the path to the **MGPS** file. You will set it in the **listener.properties** file, in the **Setting up the listener.properties file** section.

## Installing the RGPS add-on package to the R library

If you have R version 3.0.1 installed, you can optionally install the RGPS add-on package to enable Regression-adjusted Gamma Poisson Shrinker (RGPS) computations in Multi-item Gamma Poisson Shrinker (MGPS) data mining runs. For more information, see the *User Guide and Online Help*.

The RGPS add-on package is included with the Empirica Signal installation files.

Perform these steps using the privileged user account on the application server.

- 1 In a command shell, navigate to the directory containing **RGPS\_8\_1\_0\_2\_XXX.tar.gz**.
- 2 Execute the following command:

```
$ sudo R CMD INSTALL RGPS_8_1_0_2_XXX.tar.gz
```

# Installing and configuring the X Windows Virtual Frame Buffer (Xvfb)

You install X Windows Virtual Frame Buffer (Xvfb) to enable graphs in Empirica Signal.

Prerequisites:

- Yum is installed.
- Yum is configured to use the appropriate configuration file.
- Your system can connect to the yum repositories.

Perform these steps using the privileged user account on the application server.

1 Determine whether Xvfb is installed:

a Execute the following command in a command shell:

```
$ which xvfb
```

If a path to Xvfb appears, Xvfb is already installed. Alternatively, Xvfb is not installed.

b If Xvfb is already installed, skip to step 3.

2 Install Xvfb:

a Type the following command to initiate the installation:

```
$ sudo yum install xvfb
```

A password prompt might appear.

b If a password prompt appears, type the password for the privileged user account on the application server.

A confirmation prompt appears.

c Type **Y**, and press **Enter**.

3 Execute the following **cp** and **chkconfig -add** commands to enable Xvfb:

```
$ sudo su - root
# cp <INSTALL_DIR>/service/xvfb /etc/rc.d/init.d
# /sbin/chkconfig --add xvfb
```

where <INSTALL\_DIR> is the Empirica Signal installation directory.

For more information, see *Unpacking the installation files into the installation directory* (on page 21).

4 Execute the **chkconfig --list** command to verify that the installation was successful, for example:

```
# /sbin/chkconfig --list xvfb
```

The following response appears:

```
xvfb 0:off 1:off 2:off 3:on 4:off 5:on 6:off
```

5 Execute the **start** command to start Xvfb, for example:

```
# /etc/rc.d/init.d/xvfb start
```

The following response appears:

```
Starting X Virtual Frame Buffer
```

- 6 Type **exit** to terminate your session as the root user.

# Modifying the default Oracle WebLogic Server configuration files

**Note:** Oracle recommends using WebLogic 12.1.3 and Java 1.8. If you are upgrading from Signal 8.0 and you have decided to not use WebLogic 12.1.3 with Java 1.8, skip this section.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the Oracle WebLogic Server domain **bin** directory, for example:

```
$ cd /u01/app/oracle/fmw12c/user_projects/domains/empirica/bin
```

**Note:** The example command is for Oracle WebLogic Server 12c. If you use Oracle WebLogic Server 11g, the path to the WebLogic default **bin** directory might differ as follows: **/u01/app/oracle/Middleware/user\_projects/domains/empirica/bin**.

- 2 Edit the **setDomainEnv.sh** file:
  - a Using a text editor, open the **setDomainEnv.sh** file.
  - b At the end of the file, add the following lines:

```
# Local Customization
export TZ=UTC
export LANG=en_US.UTF-8
export DISPLAY=localhost:99.0
```

**Note:** If you do not use the UTC time zone, edit the text accordingly.

- c Save and close the file.
- 3 Make the edits below:
  - For WebLogic 11g, edit the **setDomainEnv.sh** file.
  - For WebLogic 12c, edit the **setStartupEnv.sh** file.
  - a Using a text editor, open the file.
  - b Search for lines containing the following text:

```
com.oracle.db.jdbc7-dms.jar
```

- c Use the hash character (#) to comment out each line, and then replace each line as follows:

```
if [ "${PRE_CLASSPATH}" != "" ] ; then
#PRE_CLASSPATH="${PRE_CLASSPATH}${CLASSPATHSEP}${COMMON_COMPONENTS_HOME}/modules/features/com.oracle.db.jdbc7-dms.jar"
PRE_CLASSPATH="${PRE_CLASSPATH}${CLASSPATHSEP}${ORACLE_HOME}/jdbc/lib/ojdbc7.jar"
export PRE_CLASSPATH
else
#PRE_CLASSPATH="${COMMON_COMPONENTS_HOME}/modules/features/com.oracle.db.jdbc7-dms.jar"
PRE_CLASSPATH="${ORACLE_HOME}/jdbc/lib/ojdbc7.jar"
export PRE_CLASSPATH
fi
```

- d Search for lines containing the following text:

```
java.awt.headless=true
```



- e Use the hash character (#) to comment out each line, and then replace each line with a copy of the original, but without `-Djava.awt.headless=true`. For example:

```
#EXTRA_JAVA_PROPERTIES="${EXTRA_JAVA_PROPERTIES} -  
Dem.oracle.home=/scratch/u01/app/oracle/product/Middleware12c/em -  
DINSTANCE_HOME=/scratch/u01/app/oracle/product/Middleware12c/user_projects/  
domains/empirica -Djava.awt.headless=true -  
Doracle.sysman.util.logging.mode=dual_mode"  
EXTRA_JAVA_PROPERTIES="${EXTRA_JAVA_PROPERTIES} -  
Dem.oracle.home=/scratch/u01/app/oracle/product/Middleware12c/em -  
DINSTANCE_HOME=/scratch/u01/app/oracle/product/Middleware12c/user_projects/  
domains/empirica -Doracle.sysman.util.logging.mode=dual_mode"
```

- f Save and close the file.

## Adding the TopicsServer to a previous Signal 8.0 installation (upgrade only)

Perform the following steps only if you are upgrading from Empirica Signal 8.0 and you have chosen to continue using Java 1.7 and WebLogic 11g.

**Note:** Oracle recommends using Java 1.8 and WebLogic 12.1.3.

### Create Managed Server

- 1 Log in to the WebLogic Console.
- 2 In the Domain Structure, navigate to **Environment > servers**.
- 3 In the Change Center section on the left, click **Lock & Edit**.
- 4 In the servers table, click **New**.
- 5 Specify the following values:
  - **Server Name:** TopicsServer.
  - **Server Listen Address:** Type the fully qualified name of the application server.
  - **Server Listen Port:** 7005.
- 6 Click **Next**.
- 7 Click **Finish**.
- 8 On the left panel, click **Activate Changes**.
- 9 In the Change Center section on the left, click **Lock & Edit**.
- 10 In the Domain Structure, navigate to **Environment > servers**.
- 11 Click **TopicsServer**.
- 12 In the Settings for TopicsServer, specify the following values:
  - **Machine:** select SignalMachine.
  - **SSL Listen Port Enabled:** 7006.
- 13 Click **Save**.
- 14 On the left panel, click **Activate Changes**.

### Set Up Data Source

- 1 In the Domain Structure, navigate to **Services > Data Sources**.
- 2 In the Change Center section on the left, click **Lock & Edit**.
- 3 Click **Empirica Credential Store**.
- 4 Click **Targets**.
- 5 Select **TopicsServer** (in addition to the already selected AdminServer and SignalServer).

- 6 Click **Save**.
- 7 Repeat steps 3 through 5 but for mds-owsm.
- 8 On the left panel, click **Activate Changes**.

## Apply JRF Template

- 1 Log in to the Oracle Enterprise Manager.
- 2 On the left side, expand **Weblogic Domain**, and select **TopicsServer**.
- 3 Click **Apply JRF Template**.
- 4 Log in to the console to start the TopicsServer Managed server:
  - a In the Domain Structure, navigate to **Environment > servers**.
  - b Click the **Control** tab.
  - c Select **TopicsServer**.
  - d Click the **Start** button.

# Configuring the Empirica Signal and Empirica Topics Oracle WebLogic Server instances

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console, for example:

```
https://<servername>:7002/console
```

- 2 Log in using the administrator credentials provided to you by the system administrator.
- 3 To configure the Empirica Signal server instance:

- a In the Domain Structure pane, expand **Environment**, and select **Servers**.

The Summary of Servers page appears.

- b Select **SignalServer**.

The Settings for SignalServer page appears.

- c Select the **Configuration** tab, and then select the **Server Start** sub-tab.

- d In the Change Center pane, click **Lock & Edit**.

- e In the **Arguments** field, type the following text on a single line without a carriage return:

```
-Xms256m -Xmx2048m -XX:MaxPermSize=1024m -
Dorg.owasp.esapi.resources=servers/SignalServer/stage/Signal/Signal/WEB-
INF/classes
```

**Note:** **-XmxNNNNm** and **-XX:MaxPermSize** are memory parameters that control the amount of memory used by the Empirica Signal application. You might need to adjust the parameters upwards to achieve appropriate performance. The numbers you use depend on the size of your data set and the number of users you expect to access the system simultaneously.

- f Click **Save**.

- g In the Change Center section on the left, click **Activate Changes**.

After a few moments, your changes are activated.

- h If you use Empirica Topics, to configure the Empirica Topics server instance, in the Domain Structure pane, select **Servers**.

The Summary of Servers page appears.

- i Select **TopicsServer**.

The Settings for TopicsServer page appears.

- j Select the **Configuration** tab, and then select the **Server Start** sub-tab.

- k In the Change Center pane, click **Lock & Edit**.

- l In the **Arguments** field, type the following text on a single line without a carriage return:

```
-Xms256m -Xmx512m -
Dorg.owasp.esapi.resources=servers/TopicsServer/stage/TopicsService/Topics
Service/WEB-INF/classes
```

**Note:** -XmxNNNNm and -XX:MaxPermSize are memory parameters that control the amount of memory used by the Topics Web Service. You might need to adjust the parameters upwards to achieve appropriate performance. The numbers you use depend on the size of your data set and the number of users you expect to access the system simultaneously.

- m Click **Save**.
- n In the Change Center section on the left, click **Activate Changes**.  
After a few moments, your changes are activated.

## Starting WebLogic and the Node Manager

Perform these steps using the non-privileged user account on the application server.

- 1 In a command shell, navigate to the WebLogic default `/bin` directory, for example:

```
$ cd u01/app/oracle/product/fmw12c/user_projects/domains/empirica/bin
```

**Note:** The example command is for Oracle WebLogic Server 12c. If you use Oracle WebLogic Server 11g, the path to the WebLogic default `bin` directory might differ as follows: `/u01/app/oracle/Middleware/user_projects/domains/empirica/bin`.

- 2 If WebLogic is running, stop WebLogic, for example:

```
$ ./stopWebLogic.sh
```

- 3 Start WebLogic, for example:

```
$ nohup ./startWebLogic.sh > /dev/null &
```

**Note:** Informational messages might appear. You might need to press **Enter** to see the command prompt.

- 4 Identify the process ID for the Node Manager service, for example:

```
$ bash -c 'pgrep -f "java.+NodeManager -v$"'
```

- 5 Stop the Node Manager, for example:

```
$ kill -9 <process_id_for_the_Node_Manager_service>
```

- 6 For WebLogic 11g only, navigate to the `$WL_HOME/server/bin` directory, for example:

```
$ cd /u01/app/oracle/Middleware/wlserver_10.3/server/bin
```

- 7 Restart the Node Manager:

```
$ nohup ./startNodeManager.sh > /dev/null &
```

- 8 Verify that the Node Manager is reachable:

- a In an Internet browser, navigate to the WebLogic Server Administration Console, for example:

```
https://<servername>:7002/console
```

- b Log in using the administrator credentials provided to you by the system administrator.
- c In the Domain Structure pane, expand **Environment**, and select **Machines**.

The Summary of Machines page appears.

- d Select **SignalMachine**.

The Settings for SignalMachine page appears.

- e Select the **Monitoring** tab.

- f Review the **Status** field.

If the Status is Reachable, the Node Manager is reachable. If the Status is Inactive, the Node Manager is not running.

- 9 In the **Domain Structure** pane, select **Servers**.

- 10 Select the **Control** tab.
- 11 Start or restart the Empirica Signal server using the Node Manager:
  - a In the table, review the **State** property for the Empirica Signal server.
  - b If the State of the server is RUNNING, shut down the server:
    - 1 Select the **SignalServer** checkbox.
    - 2 Expand the **Shutdown** drop-down menu, and then select **Force Shutdown Now**.
    - 3 If prompted to confirm, click **Yes**.After a few moments, the State of the server changes to SHUTDOWN.

**Note:** The page does not refresh automatically. To refresh the page, you can click the refresh button located above the table.

- c Select the **SignalServer** checkbox.
  - d Click **Start**.
  - e If prompted to confirm, click **Yes**.
- After a few moments, the State of the server changes to RUNNING.

**Note:** The page does not refresh automatically. To refresh the page, you can click the refresh button located above the table.

- 12 If you use Empirica Topics, start or restart the Empirica Topics server using the Node Manager:
  - a In the table, review the **State** property for the Empirica Topics server.
  - b If the State of the server is RUNNING, shut down the server:
    - 1 Select the **TopicsServer** checkbox.
    - 2 Expand the **Shutdown** drop-down menu, and then select **Force Shutdown Now**.
    - 3 If prompted to confirm, click **Yes**.After a few moments, the State of the server is SHUTDOWN.

**Note:** The page does not refresh automatically. To refresh the page, you can click the refresh button located above the table.

- c Select the **TopicsServer** checkbox.
  - d Click **Start**.
  - e If prompted to confirm, click **Yes**.
- After a few moments, the State of the server is RUNNING.

**Note:** The page does not refresh automatically. To refresh the page, you can click the refresh button located above the table.





## CHAPTER 4

# Configuring database credentials

### In this chapter

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## Creating the Empirica Topics user on the WebLogic server

**Note:** Oracle recommends using WebLogic 12.1.3 and Java 1.8. If you are upgrading from Empirica Signal 8.0 and you have decided to not use WebLogic 12.1.3 with Java 1.8, skip this section.

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console, for example:

`https://<servername>:7002/console`

- 2 Log in using the administrator credentials provided to you by the system administrator.

- 3 In the **Domain Structure** pane, click **Security Realms**.

The Summary of Security Realms page appears.

- 4 In the Realms table, click **myRealm**.

The Settings for myrealm page appears.

- 5 Select the **User and Groups** tab.

- 6 In the Users table, click **New**.

The Create a New User page appears.

- 7 Specify a user name and password for the Empirica Topics user.

For example, you might specify topicsService as the user name.

**Note:** You store the user name in the credential store in Oracle Enterprise Manager.

- 8 Click **OK**.

The user is created.

# Storing the Empirica Signal database and Empirica Topics credentials in Oracle Enterprise Manager

You create a map to store credentials associated with the Empirica Signal application. You create keys in the map for:

- Empirica Signal database account credentials.
- The URL to connect to the Empirica Signal database account.
- Empirica Topics credentials, if you use the Topics service.
- LDAP credentials, if you use LDAP for authentication.

1 In an Internet browser, navigate to Oracle Enterprise Manager console, for example:

```
https://<server_name>:7002/em
```

2 Log in using the WebLogic Server administrator credentials provided to you by the system administrator.

The Oracle Enterprise Manager console appears.

3 In the navigation pane, expand **WebLogic Domain**, and select **empirica**.

4 Below the page title, expand the **WebLogic Domain** menu, select **Security**, and then select **Credentials**.

The Credentials page appears.

5 If you are upgrading from Empirica Signal 8.0, click the **oracle.hsgbu.empirica** map, then click **Delete...**, and answer **Yes** to complete the deletion.

6 Create a map for the Empirica Signal application credentials:

a In the Credentials table, click **Create Map**.

The Create Map dialog box appears.

b In the **Map Name** field, type **oracle.hsgbu.empiricasignal**.

c If you set the **instance.name** property in the **webvdme.properties** file, append the instance name to the map name, for example, **oracle.hsgbu.empiricasignal.dev**.

For more information, see Setting up the webvdme.properties file for Empirica Signal.

d Click **OK**.

7 Create a key for the Empirica Signal database account credentials:

a In the Credentials table, click **Create Key**.

b Fill in the fields as follows.

**Note:** Text fields are case-sensitive.

- **Select Map**—Select the map you created in step 6.
- **Key**—Type **DatabaseCredentials**.
- **Type**—Select **Password**.
- **User Name, Password, Confirm Password**—Type the credentials for the Empirica

Signal database schema.

The default user name is webvdme.

- **Description**—Type **Signal schema user name and password**.

c Click **OK**.

8 Create a key for the URL to connect to the Empirica Signal database account:

a In the Credentials table, click **Create Key**.

b Fill in the fields as follows.

**Note: Text fields are case-sensitive.**

- **Select Map**—Select the map you created in step 6.
- **Key**—Type **DatabaseConnectURL**.
- **Type**—Select **Generic**.
- **Credential**—Select Enter as text, and type the database connection URL for the Empirica Signal database schema, for example:

```
jdbc:oracle:thin:@//<host>:<port>/<service_name>
```

<host> is the IP address or fully qualified name of the database server, for example, **198.168.0.1**.

<port> is the port number used by the database listener, for example, **1521**.

<service\_name> is the database service name, for example, **ORCL**.

- **Description**—Type **Signal database connection URL**.

c Click **OK**.

9 If you use Empirica Topics, create a key for the Topics service credentials:

a In the Credentials table, click **Create Key**.

b Fill in the fields as follows.

**Note: Text fields are case-sensitive.**

- **Select Map**—Select the map you created in step 6.
- **Key**—Type **TopicsService**.
- **Type**—Select **Password**.
- **User Name, Password, Confirm Password**—Type the credentials for the Empirica Topics user you created on the WebLogic server.

For more information, see *Creating the Empirica Topics user on the WebLogic server* (on page 44).

- **Description**—Type **User name and password for Signal to communicate with the Topics service**.

c Click **OK**.

10 If you use LDAP for authentication and do not use anonymous LDAP login, create a key for the

LDAP credentials:

- a In the Credentials table, click **Create Key**.
- b Fill in the fields as follows.

**Note: Text fields are case-sensitive.**

- **Select Map**—Select the map you created in step 6.
  - **Key**—Type **LdapCredentials**.
  - **Type**—Select **Password**.
  - **User Name, Password, Confirm Password**—Type the login information for the LDAP user.
  - **Description**—Type **LDAP user name and password**.
- c Click **OK**.
- 11 In the Credentials table, expand the map you created and review the keys.

## Setting up permissions for the credential store

**Note:** Oracle recommends using WebLogic 12.1.3 and Java 1.8. If you are upgrading from Empirica Signal 8.0 and you have decided to not use WebLogic 12.1.3 with Java 1.8, skip this section.

You create security grants in the Oracle WebLogic server console to enable the Empirica Signal application to access the credential store. Otherwise, the application cannot start, and users cannot log in.

- 1 In an Internet browser, navigate to Oracle Enterprise Manager console, for example:

```
https://<server_name>:7002/em
```

- 2 Log in using the WebLogic Server administrator credentials provided to you by the system administrator.

The Oracle Enterprise Manager console appears.

- 3 In the navigation pane, expand **WebLogic Domain**, and select domain, such as **empirica**.
- 4 Below the page title, expand the **WebLogic Domain** menu, select **Security**, and then select **System Policies**.

The System Policies page appears.

- 5 Create a security grant for the Empirica Signal codebase:

- a In the System Policies table, click **Create**.

The Create System Grant page appears.

- b In the **Codebase** field, type the case-sensitive codebase, for example:

```
file:${oracle.deployed.app.dir}/Signal${oracle.deployed.app.ext}
```

**Note:** Use the codebase value in the example unless the context root value is different from the default value of Signal. For more information, see *Creating the Empirica Signal deployment on the WebLogic server* (on page 64).

- 6 Add a permission to the security grant for Empirica Signal:

- a Click **Add**.

The Add Permission page appears.

- b At the bottom of the page, select **Select here to enter details for a new permission**.

- c Fill in the fields as follows.

- **Permission Class**—oracle.security.jps.service.credstore.CredentialAccessPermission
  - **Resource Name**—context=SYSTEM,mapName=<MAP\_NAME>,keyName=\*  
where <MAP\_NAME> is the map you created for the Empirica Signal application credentials, for example, **oracle.hsgbu.empiricasignal**. For more information, see Storing the Empirica Signal database and Empirica Topics credentials in Oracle Enterprise Manager.
  - **Permission Actions**—read
- d Click **OK**.  
The Create System Grant page reappears.
  - e Click **OK**.  
The permission is saved, and the System Policies page reappears.
- 7 Search for the security grant you just created:
    - a From the **Name** drop-down list, select **Includes**.
    - b In the search field, type **Signal** or the application context root.  
For more information, see *Creating the Empirica Signal deployment on the WebLogic server* (on page 64).
    - c Click **Search**.  
The security grant appears in the table.
  - 8 Create a security grant for the Empirica Signal WebLogic domain codebase based on the security grant you searched for:
    - a In the table, select the security grant, and click **Create Like**.  
The Create System Grant Like page appears.
    - b In the **Codebase** field, type the case-sensitive codebase, for example:  

```
file:${domain.home}/servers/${weblogic.Name}/stage/Signal/Signal${oracle.deployed.app.ext}
```

**Note:** Use the codebase value as is unless you plan to use a context root value other than the default value of Signal. For more information, see *Creating the Empirica Signal deployment in WebLogic* (on page 64).
    - c Click **OK**.  
The security grant is created.
  - 9 Follow the previous two steps to create security grants for the following codebases.
    - **WebLogic Server codebase (if you are using WebLogic 11g):**  

```
file:${wls.home}/../..../patch_wls1036/patch_jars/-
```

**Note:** This codebase indicates the directory where you installed the patch for WebLogic.
    - **Empirica Topics service codebase:**  

```
file:${oracle.deployed.app.dir}/TopicsService${oracle.deployed.app.ext}
```

- **Empirica Topics WebLogic domain codebase:**

```
file:${domain.home}/servers/${weblogic.Name}/stage/TopicsService${oracle  
.deployed.app.ext}
```



## Updating permissions for the credential store (upgrade from Empirica Signal 8.0 only)

You modify and create security grants in the Oracle WebLogic server console to enable the Empirica Signal application to access the credential store. Otherwise, the Empirica Signal application cannot start, users cannot login, and the Topics Web Service is unavailable.

- 1 In the Oracle Enterprise Manager, on the left, expand **WebLogic Domain**, and select **empirica**.
- 2 Expand the **WebLogic Domain** menu, located below the empirica page title, and select **Security > System Policies**.

The System Policies page appears.

- 3 Search for the security grant for the Empirica Signal codebase:
  - a From the Name drop-down list, select **Includes**.
  - b In the field after the Name field, type **Signal** or the intended application context root.
  - c Click the search button.

The existing security grant appears in the table.

- 4 Select the below security grant and click **Edit**:

```
file:${oracle.deployed.app.dir}/Signal${oracle.deployed.app.ext}
```

- 5 Edit permission:

- a Select the permission in the table and click **Edit**.

The Edit Permission page appears.

- b Update Resource Name as below –

```
context=SYSTEM,mapName=oracle.hsgbu.empiricasignal,keyName=*
```

- c Click **OK**.

The System Policies > Edit System Grant page appears.

- 6 Click **OK**.

The permission is saved. The System Policies page appears.

- 7 Search for the security grant for the Empirica Signal WebLogic domain codebase:

- a From the Name drop-down list, select **Includes**.
- b In the field after the Name field, type **Signal** or the intended application context root.
- c Click the search button.

The existing security grant appears in the table.

- 8 Edit permission:

- a Select the below security grant in the table, and click **Edit**:

```
file:${domain.home}/servers/${weblogic.Name}/stage/Signal/Signal${oracle.deployed.app.ext}
```

- b Select the permission in the table and click **Edit**.

The Edit Permission page appears.

- c Update Resource Name as below:  
`context=SYSTEM,mapName=oracle.hsgbu.empiricasignal,keyName=*`
  - d Click **OK**.  
The System Policies > Edit System Grant page appears.
- 9 Click **OK**.  
The permission is saved. The System Policies page appears.
- 10 Search for the security grant for the WebLogic Server codebase:
  - a From the Name drop-down list, select **Includes**.
  - b In the field after the Name field, type **wls.home**.
  - c Click the **Search** button.  
The existing security grant appears in the table.
- 11 Edit Permission:
  - a Select the below security grant in the table, and **Edit**:  
`file:${wls.home}/../../../../patch_wls1036/patch_jars/-`
  - b Select the permission in the table and click **Edit**.  
The Edit Permission page appears.
  - c Update Resource Name as below:  
`context=SYSTEM,mapName=oracle.hsgbu.empiricasignal,keyName=*`
  - d Click **OK**.  
The System Policies > Edit System Grant page appears.
  - e Click **OK**.  
The permission is saved. The System Policies page appears.
- 12 Search for an existing security grant in order to make a new security grant for the Empirica Topics service codebase:
  - a From the Name drop-down list, select **Includes**.
  - b In the field after the Name field, type **Signal** or the intended application context root.
  - c Click the search button.  
The existing security grant appears in the table.
- 13 Create a security grant for the Empirica Topics service codebase based on the existing security grant for the Empirica Signal codebase:
  - a Select the below security grant in the table, and click **Create Like**.  
`file:${oracle.deployed.app.dir}/Signal${oracle.deployed.app.ext}`  
The System Policies > Create System Grant Like page appears.
  - b In the Codebase field, type the case-sensitive codebase, such as the following value:  
`file:${oracle.deployed.app.dir}/TopicsService${oracle.deployed.app.ext}`
  - c Click **OK**.

The security grant is added.

- 14 Search for the security grant you just created in order to make a new security grant for the Empirica Topics WebLogic domain codebase:
  - a From the Name drop-down list, select **Includes**.
  - b In the field after the Name field, type **Topic** or the intended application context root.
  - c Click the search button.

The existing security grant appears in the table.

- 15 Create a security grant for the Empirica Topics WebLogic domain codebase based on the existing security grant for the Empirica Topics service codebase:
  - a Select the below policy in the table, and click **Create Like**:

```
file:${oracle.deployed.app.dir}/TopicsService${oracle.deployed.app.ext}
```

The System Policies > Create System Grant Like page appears.
  - b In the Codebase field, type the case-sensitive codebase, such as the following value:

```
file:${domain.home}/servers/${weblogic.Name}/stage/TopicsService/TopicsService${oracle.deployed.app.ext}
```
  - c Click **OK**.

The security grant is added.



## CHAPTER 5

# Setting up the Empirica Signal software

### In this chapter

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# Setting up the Empirica Signal properties files

## Setting up the webvdme.properties file for Empirica Signal

You create and edit the webvdme.properties file to supply important properties to the Empirica Signal software.

Before you begin, if you intend to configure the Empirica Signal software to use single sign-on (SSO) with Oracle Access Manager (OAM), refer to *Setting up Oracle Access Manager (OAM)* (on page 94) for configuration details.

Perform these steps using the non-privileged user account on the application server.

- 1 If you are installing the Empirica Signal software on this server for the first time, create a directory for temporary files created by the Empirica Signal application if it has not already been created, for example:

```
$ mkdir /u01/app/oracle/product/Signal/temp
```

- 2 Set the permissions on the directory containing the log file to enable write access for the non-privileged user account.

- 3 Navigate to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```

- 4 Copy the `template_webvdme.properties` file into the same directory, and name the copy `webvdme.properties`, for example:

```
$ cp template_webvdme.properties webvdme.properties
```

- 5 Using a text editor, open the `webvdme.properties` file.

- 6 Edit the parameters according to the following table:

Parameter	Description	Example
<code>sqlldr_connect</code>	Specify the value <code>&lt;TNS_NAME&gt;</code> .	<code>sqlldr_connect=orcl</code>
<code>temp_dir</code>	Specify the path to the /temp directory you created in Step 1.	<code>temp_dir=/u01/app/oracle/product/Signal/temp</code>
<code>instance.name</code>	<ul style="list-style-type: none"> <li>• If you plan to use one application server to host multiple instances of Empirica Signal, provide the name of the instance.</li> <li>• If you do not plan to use one application server to host multiple instances of Empirica Signal, leave the <code>instance.name</code> blank.</li> </ul>	<code>instance.name=dev</code> or <code>instance.name=</code>

Parameter	Description	Example
<b>#topicsService.url</b>	<ul style="list-style-type: none"> <li>If you plan to use the Topics feature, uncomment the line, and replace localhost with your server name and portNumber with the port number.</li> <li>If you do not plan to use the Topics feature, uncomment the line, and set the topicsService.url parameter to empty.</li> </ul>	<b>topicsService.url=https://myserver:7004/TopicsService/ws/topicsService</b>  The example is for an SSL environment, where you configure the SSL security policy for the Topics web service. For more information, see <i>Setting up the Topics web service security policy</i> (on page 67). For a non-SSL environment, use http and the appropriate port.
<b>#sso.plugins</b>	To enable SSO, uncomment the line.	<b>sso.plugins=com.oracle.hsgbu.empirica.sso.EmpiricaSsoPlugin</b>
<b>#sso.EmpiricaSsoPlugin.username.header</b>	To enable SSO, uncomment the line.  The value of the sso.EmpiricaSsoPlugin.username.header property depends on your OAM configuration.	<b>sso.EmpiricaSsoPlugin.username.header=OAM_REMOTE_USER</b>
<b>#sso.EmpiricaSsoPlugin.logoutRedirectUrl</b>	To enable SSO, uncomment the line, and replace the sample URL with your logout URL in the form <https://ssoServer:port/oamssso/logout.jsp>.	<b>sso.EmpiricaSsoPlugin.logoutRedirectUrl=&lt;OAM_logout_URL&gt;?end_url=https://myserver:7004/Signal</b>

- 7 Save and close the file.
- 8 For an SSO environment, update the session timeout value:
  - a Navigate to the <INSTALL\_DIR>/Signal/WEB-INF directory, for example:  

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF
```
  - b Using a text editor, open the **web.xml** file.
  - c Edit the session-timeout parameter so that it is greater than the session timeout for the single sign-on setup in the organization.
  - d Save and close the file.

## Setting up the webvdm.properties file for Empirica Topics

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the <INSTALL\_DIR>/TopicsService/WEB-INF/classes directory, for

example:

```
$ cd /u01/stage/Signal_Install/TopicsService/WEB-INF/classes
```

- 2 Copy the **template\_webvdme.properties** file into the same directory, and name the copy **webvdme.properties**, for example:

```
$ cp template_webvdme.properties webvdme.properties
```

- 3 Using a text editor, open the **webvdme.properties** file.
- 4 Edit the **instance.name** parameter.

The instance name should match the instance name you provided for the Empirica Signal **webvdme.properties** file. For more information, see Setting up the webvdme.properties file for Empirica Signal.

## Setting up the listener.properties file

You create and edit the **listener.properties** file to store information used for data mining runs.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the **<INSTALL\_DIR>/Signal/WEB-INF/classes** directory, for example:

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```

- 2 Copy the **template\_listener.properties** file into the same directory, and name the copy **template.properties**, for example:

```
$ cp template_listener.properties listener.properties
```

- 3 Using a text editor, open the **listener.properties** file.
- 4 Edit the parameters according to the following table:

Parameter	Description	Example
(Upgrade only) <b>mgps_mem_limit</b>	If the value of this parameter was larger in the listener.properties file for your previous version of Empirica Signal, update the parameter with the larger value.	
(Upgrade only) <b>mgps_prr_mem_limit</b>	For the property mgps_prr_mem_limit, Signal 7.3 had a default value of 527343. Signal 8.x requires double the amount that was needed in version 7.3, with the default being 1054686. Please review your settings.	
(Upgrade only) <b>fetch_size</b>	If the value of this parameter was larger in the listener.properties file for your previous version of Empirica Signal, update the parameter with the larger value.	
<b>mgps_path</b>	Specify the path to the MGPS executable. For more information, see <i>Installing MGPS</i> (on page 30).	<b>mgps_path=u01/app/oracle/product/Signal/bin/MGPS</b>



Parameter	Description	Example
<b>r_path</b>	If R version 3.0.1 is installed on your application server, specify the path to the directory where R is installed.	<b>r_path=/usr/lib64/R</b>
<b>rgps_command</b>	If R version 3.0.1 is installed on your application server and you want to enable Regression-adjusted Gamma Poisson Shrinker (RGPS) computations, specify the path to the command that starts R.  You can execute the <code>which R</code> command to determine the path.  For more information, see Installing the RGPS add-on package to the R library.	<b>rgps_command=/usr/bin/R</b>
<b>rgps_cpus_count</b>	Maximum Number of CPU cores to use in RGPS execution.  This value should be less than the total number of CPU cores on the machine. A larger number will speed up RGPS execution but may affect other activities on the application server.	<b>rgps_cpus_count=2</b>
<b>sqlldr_path</b>	Specify the path to the SQL Loader executable.	<b>sqlldr_path=/u01/app/oracle/product/12.1.0/bin/sqlldr</b>

- 5 Save and close the file.

## Setting up the `report_listener.properties` file

You create and edit the `report_listener.properties` file to enable Empirica Signal to run reports in batches.

Before you begin, note the value of the `serverid` property in the `listener.properties` file. For more information, see *Setting up the listener.properties file* (on page 58).

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:

```
$ cd <INSTALL_DIR>/Signal/WEB-INF/classes
```
- 2 Copy the `template_report_listener.properties` file into the same directory, and name the copy `report_listener.properties`, for example:

```
$ cp template_report_listener.properties report_listener.properties
```
- 3 Using a text editor, open the `report_listener.properties` file.
- 4 If the value of the `serverid` property in the file is the same value as the `serverid` property in the `listener.properties` file, change the value.
- 5 Save and close the file.

## Setting up the `webvdme-fonts.properties` file

You create and edit the `webvdme-fonts.properties` file to store font information for the Empirica Signal.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:  

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 2 Copy the `template_webvdme-fonts.properties` file into the same directory, and name the copy `webvdme-fonts.properties`, for example:

```
$ cp template_webvdme-fonts.properties webvdme-fonts.properties
```

- 3 Using a text editor, open the `webvdme-fonts.properties` file.
- 4 To support Asian fonts in PDF output, specify the Albany WT Unicode font as the base font, for example:

```
iText.TABLE_WRITER_BASE_FONT_PATH=ALBANYWTJ.TTF
iText.CASE_SERIES_DETAIL_BASE_FONT_PATH=ALBANYWTJ.TTF
iText.TOPIC_WRITER_BASE_FONT_PATH=ALBANYWTJ.TTF
```

The Albany WT Unicode font is packaged with the Empirica Signal installation files.

- 5 (Upgrade only) If you customized the `webvdme-fonts.properties` file for the previous release of the Empirica Signal software:
  - a Install Linux versions of the fonts to preserve on the application server.
  - b Update the `webvdme-fonts.properties` file with the names of the fonts you installed.
- 6 Save and close the file.

## Setting up the `log4j.properties` file for Empirica Signal

You edit the `log4j.properties` file to specify where you want to store Empirica Signal log files.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:  

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 2 Using a text editor, open the `log4j.properties` file.
- 3 Set the `log4j.appender.defaultAppender.File` parameter to the file for storing Empirica Signal log messages, for example:

```
log4j.appender.defaultAppender.File=/u01/app/oracle/product/Signal/logs/weberror.log
```

- 4 (Upgrade only) If you customized the `log4j.properties` file for the previous release of the Empirica Signal software, apply the customizations to the `log4j.properties` file for the current release.
- 5 Save and close the file.
- 6 Set the permissions on the directory containing the log file to enable write access for the non-privileged user account.

## Setting up the log4j.properties file for Empirica Topics

You edit the **log4j.properties** file to specify where you want to store Empirica Topics log files.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the **<INSTALL\_DIR>/TopicsService/WEB-INF/classes** directory, for example:

```
$ cd /u01/stage/Signal_Install/TopicsService/WEB-INF/classes
```

- 2 Using a text editor, open the **log4j.properties** file.
- 3 Set the **log4j.appender.defaultAppender.File** parameter to the file for storing Empirica Topics log files, for example:

```
log4j.appender.defaultAppender.File=/u01/app/oracle/product/Signal/logs/to  
picswebservice.log
```

- 4 (Upgrade only) If you customized the **log4j.properties** file for the previous release of the Empirica Signal software, apply the customizations to the **log4j.properties** file for the current release.
- 5 Save and close the file.

## Setting up the ldap.properties file

To integrate Empirica Signal with LDAP, you store information about the LDAP configuration in the **ldap.properties** file. For more information, see the LDAP section in the *User Guide and Online Help*.

## Preserving custom home pages, images, and release notes from a previous release

Perform these steps using the non-privileged user account on the application server to preserve any customizations you made to release 8.1 or 8.1.0.1 and to copy *Release Notes* documents from previous releases.

- 1 Copy any relevant *Release Notes* documents from the previous installation location to the new installation location. For example, copy the *Release Notes* documents from one of the following locations:

```
C:\Lincoln\apps\webvdme\webapps\web_root\relnotes
```

or

```
/u01/stage/Signal_Install_old/Signal/relnotes
```

to the following location:

```
/u01/stage/Signal_Install/Signal/relnotes
```

**Note:** You do not need to copy the following documents: *Release Notes* documents for data releases that are no longer on your server, MedDRA documents for releases that are no longer on your server, *Release Notes* documents for prior releases of the Empirica Signal software, a PDF document of the *User Guide and Online Help* for prior releases, the *Logistic Regression in Empirica Signal 7.1* PDF document.

- 2 Copy any custom content, such as custom home pages, from the previous installation location to the new installation location. For example, copy your file from one of the following locations:

```
C:\Lincoln\apps\webvdme\webapps\web_root\customhomes
```

or

```
/u01/stage/Signal_Install_old/Signal/customhomes
```

to the following location:

```
/u01/stage/Signal_Install/Signal/customhomes
```

- 3 Copy any custom images from the previous installation location to the new installation location. For example, copy your file from one of the following locations:

```
C:\Lincoln \apps\webvdme\webapps\web_root\image
```

or

```
/u01/stage/Signal_Install_old/Signal/image
```

to the following location:

```
/u01/stage/Signal_Install/Signal/image
```

## Making the Release Notes available within the application

- 1 Obtain the most recent version of the Release Notes. For more information, see *Where to find the product documentation* (on page 129).
- 2 Copy the Release Notes to the following location:

```
/u01/stage/Signal_Install/Signal/relnotes
```

## CHAPTER 6

# Deploying the Empirica Signal application

### In this chapter

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## Creating the Empirica Signal deployment on the WebLogic server

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console, for example:  

```
https://<servername>:7002/console
```
- 2 Log in using the administrator credentials provided to you by the system administrator.
- 3 In the Domain Structure pane, click **Deployments**.
- 4 In the Change Center pane, click **Lock & Edit**.
- 5 If you are upgrading from Signal 8.0 and you have decided to not use WebLogic 12.1.3 with Java 1.8, perform the following steps:
  - a In the Deployments table, select **Signal**.
  - b In the Deployments table on the right, click **Stop**, and then **Force stop now**.
  - c In the Deployments table, select **Signal**.
  - d In the Deployments table on the right, click **Delete**.
  - e On the left panel, click **Activate Changes**.
  - f In the Change Center section on the left, click **Lock & Edit**.
- 6 In the Deployments table, click **Install**.  
The Install Application Assistant wizard appears.
- 7 In the Locate deployment to install and prepare for deployment page:
  - a In the Path field, type the path to the **<INSTALL\_DIR>**.
  - b Click **Next**.
  - c Select **Signal**.
  - d Click **Next**.
- 8 In the Choose targeting style page:
  - a Select **Install this deployment as an application**.
  - b Click **Next**.
- 9 In the Select deployment targets page:
  - a Select **SignalServer**.
  - b Click **Next**.
- 10 In the Optional Settings page, in the Source Accessibility section:
  - a Select **Copy this application onto every target for me**.
  - b Click **Next**.
- 11 Click **Finish**.  
After a few moments, the Signal deployment is created.
- 12 In the Domain Structure pane, click **Deployments**.

**Signal** appears in the Deployments table.

- 13 In the Change Center pane, click **Activate Change**.

The deployment State changes to Prepared.

- 14 In the Deployments table, select the Signal deployment.

- 15 Expand the **Start** drop-down list, and select **Servicing all requests**.

- 16 If prompted to confirm, click **Yes**.

The deployment State changes to Active.

## Creating the Empirica Topics web service deployment on the WebLogic server

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console, for example:

`https://<servername>:7002/console`

- 2 Log in using the administrator credentials provided to you by the system administrator.
- 3 In the Domain Structure pane, click **Deployments**.
- 4 In the Change Center pane, click **Lock & Edit**.
- 5 In the Deployments table, click **Install**.

The Install Application Assistant wizard appears.

- 6 In the Locate deployment to install and prepare for deployment page:
  - a In the Path field, type the path to the **<INSTALL\_DIR>**.
  - b Click **Next**.
  - c Select **TopicsService**.
  - d Click **Next**.
- 7 In the Choose targeting style page:
  - a Select **Install this deployment as an application**.
  - b Click **Next**.
- 8 In the Select deployment targets page:
  - a Select **TopicsServer**.
  - b Click **Next**.
- 9 In the Optional Settings page:
  - a Select **Copy this application onto every target for me**.
  - b Click **Next**.
- 10 Click **Finish**.

After a few moments, the TopicsService deployment is created.

- 11 In the Domain Structure pane, click **Deployments**.  
**TopicsService** appears in the Deployments table.
- 12 In the Change Center pane, click **Activate Change**.  
The deployment State changes to Prepared.
- 13 In the Deployments table, select the TopicsService deployment.
- 14 Expand the **Start** drop-down list, and select **Servicing all requests**.
- 15 If prompted to confirm, click **Yes**.

The deployment State changes to Active.



## Setting up the Topics web service security policy

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console, for example:

`https://<server_name>:7002/em`

- 2 Log in using the administrator credentials provided to you by the system administrator.
- 3 In the navigation pane, expand **Application Deployments**, and select **Topics-Service**.
- 4 In the Web Services table, click **EmpiricaTopicsPort**.  
After one or two minutes, information about the EmpiricaTopicsPort web service appears.
- 5 Click the **WSM Policies** tab.
- 6 Click the **Attach/Detach** icon.
- 7 Search for, then select the row for one of the following policies in the Available Policies table:
  - **If you configured SSL**—oracle/wss\_username\_token\_over\_ssl\_service\_policy
  - **If you did not configure SSL**—oracle/wss\_username\_token\_service\_policy

- 8 Click **Attach**.

The policy appears in the Attached Policies table.

- 9 Click **Validate**.

A confirmation message appears.

- 10 Click **OK**.

- 11 Click **OK** again in the upper-right corner of the page.

After one or two minutes, the application applies a user name token service policy to the Topics web service.



## CHAPTER 7

# Post-installation configuration

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## Setting the passwords of the system and admin users (installation only)

The **system** account is used internally by the Empirica Signal software. You cannot use the **system** account to log in to the Empirica Signal software.

The **admin** account is a superuser account and is not an SSO user account. You use the **admin** account to log in initially so you can create local users and configure the Empirica Signal software.

You must set the passwords for the product installation to be complete.

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `<INSTALL_DIR>/bin/PasswordReset` directory, for example:

```
$ cd /u01/stage/<INSTALL_DIR>/PasswordReset
```

- 2 Using a text editor, open the `runPasswordReset.sh` file.
- 3 Check the values of these environment variables and change them as necessary to the correct locations for your system:
  - a `COMMON_COMPONENTS_HOME` is the path to the `oracle_common` subdirectory in the WebLogic Middleware directory.
  - b `JPS_CONFIG_FILE` is the path to the OPSS configuration file, which is located in the `config/fmwconfig` subdirectory of the WebLogic domain home directory by default.
  - c `JPS_MANIFEST_JAR` is the path to the `JPS_MANIFEST_JAR` file for your version of WebLogic Server.
  - d `INSTALL_ROOT`—Change this to the value of `<INSTALL_ROOT>`.
- 4 Save and close the file.
- 5 Set the password for the **system** user:

- a In the command shell, execute the `runPasswordReset.sh` script for the **system** user, for example:

```
$ ./runPasswordReset.sh system override-passwordmustchange
```

Logging information appears, and then a password prompt appears.

- b Type the password for the **system** user, and press **Enter**.

By default, the password must contain at least eight characters, including an uppercase character, lowercase character, acceptable symbol, and number.

A confirmation prompt appears.

- c Retype the password, and press **Enter**.

If the passwords match, a confirmation message appears.

Alternatively, an error message appears.

- d If an error message appeared, run the command again and type matching passwords.

- 6 Set the password for the **admin** user:

- a In the command shell, execute the `runPasswordReset.sh` script for the **admin** user, for example:

```
$ ./runPasswordReset.sh admin
```

Logging information appears, and then a password prompt appears.

- b Type the password for the **admin** user, and press **Enter**.

**Note:** You use this password to log in to the Empirica Signal application as the **admin** user.

The password must contain at least eight characters, including an uppercase character, lowercase character, acceptable symbol, and number.

A confirmation prompt appears.

- c Retype the password, and press **Enter**.

If the passwords match, a confirmation message appears.

Alternatively, an error message appears.

- d If an error message appeared, run the command again and type matching passwords.

## Configuring the Empirica Signal software

Before users can use Empirica Signal, you must complete the following tasks. For information about each task, see the *User Guide and Online Help*.

- 1 In a Microsoft Internet Explorer browser window, navigate to the login page, for example:

```
https://<server name>:7004/Signal
```

The example is for a site that requires SSL and does not use single sign-on. If your site does not require SSL connections, use:

```
http://<server name>:7003/Signal
```

If your site uses SSO, use the native login port provided to you by Oracle or the administrator who configured SSO for the application.

If the login page appears, the site is set up correctly.

- 2 Log in as the **admin** user:

- **Username**—**admin**
- **Password**—The password you created in the previous procedure.

**Note:** For upgrades, use the credentials from your previous installation.

For more information, see *Setting the passwords of the system and admin users (installation only)* (on page 70).

If this is a new installation, you are prompted to change your password:

- a Change your password.  
You are logged out of the software.
- b Log in as the **admin** user with the new password.  
The home page appears.

- 3 Set your site options:

- a Click **Settings**, and then click **Set Site Options**.  
The Site Options page appears.
- b Verify the SMTP server name.
- c If R version 3.0.1 is installed on your system, and you set the rgps parameters in the listener.properties file, select **Enable RGPS Option in MGPS Data Mining Runs**.

Alternatively, verify that the option is deselected.

For more information, see Setting up the listener.properties file.

- d In the following fields, specify the email address for your support team:
  - **From Email Address**
  - **Feedback Email**
  - **Error Email**

The default email address is for the Empirica Signal support team

(eSignalcontact\_ww\_grp@oracle.com).

- e Verify that all other site options are set correctly.
  - f Click **Save**.
- 4 Click **Exit**.
- You are logged out.
- 5 If your site uses SSO, create a new user and test the SSO login:
- a Create an SSO user in your SSO application.
  - b If you self host Empirica Signal and use Oracle Access Manager (OAM) for SSO, create the same user in the Empirica Signal application.  
  
If Oracle hosts your instance of Empirica Signal, you do not need to perform this step.
  - c In a Microsoft Internet Explorer browser window, navigate to the login page.  
  
The login prompt appears.
  - d Log in as the newly created SSO user.  
  
The home page appears.
  - e Click **Exit**.  
  
You are logged out.

## Installing report data (installation only)

You install a small data stub on the Oracle database to enable the standard reports in the Empirica Signal application. The data stub includes the AERS (1q03:S) data configuration. Do not perform this procedure if the AERS68\_TO\_1Q03 data set is already installed on the application server.

Before you begin, locate the `data_stub.zip` file. The zip file contains:

- An Oracle DMP file.
- SQL scripts.
- A shell (.sh) script.
- An IMP file.

Perform these steps using the non-privileged user account on the application server.

1 Unpack the **Data\_Stub.zip** file:

a Create a `/u01/stage/data_stub` directory, for example:

```
$ mkdir /u01/stage/data_stub
```

b Unzip the **Data\_Stub.zip** file into the `data_stub` directory, for example:

```
$ unzip Data_Stub.zip -d /u01/stage/data_stub
```

c Verify that the `/data_stub` directory contains the same files as the **Data\_Stub.zip** file.

2 Create the tablespaces and accounts used to store the production data:

a Using a text editor, open the `/u01/stage/data_stub/create_prod.sql` file.

b To create the data file in a location other than the default location of your database, specify the alternate location in the **DATAFILE\_PATH** variable.

c In a command shell, use the following command to navigate to the `/u01/stage/data_stub` directory:

```
$ cd /u01/stage/data_stub
```

d Type the following command on one line to execute the script:

```
$ sqlplus system@<TNS_NAME> @create_prod
```

A password prompt appears.

e Type the Oracle system account password.

A second password prompt appears.

f Type a password for the **AERS68\_TO\_1Q03** account.

g Confirm the password.

**Note: Remember this password for later in this procedure.**

The `create_prod.sql` script creates a tablespace for the data consisting of one 40 MB data file.

3 To load the data into the Oracle database:

a Edit the **load\_prod.imp** file, supplying your Oracle instance at the end of the `userid` line, for example:



```
userid=AERS68_TO_1Q03@orcl
```

- b Execute the following command to give execute permissions to **load\_prod.sh**:  

```
$ chmod u+x load_prod.sh
```
  - c Execute the **load\_prod.sh** file using the following command:  

```
$ ./load_prod.sh
```
  - d Type the password for the **AERS68\_TO\_1Q03** account. You created the password in step 2f.
- 4 To import the supplied standard **AERS (1Q03: S)** configuration into the Empirica Signal application:
- a Log in to the Empirica Signal application using the **admin** user name.
  - b Click **Settings**, and click **Manage Configurations**.
  - c Click **Import Configurations**.
  - d Type the following account name:  

```
AERS68_TO_1Q03
```
  - e Click **OK**.
  - f Verify that the **AERS (1q03: S)** standard configuration is listed on the Manage Configurations page.
  - g On the Manage Configurations page, click the row menu, and click **Edit**.
  - h On the Modify Configuration page, click **Validate Now**.
  - i Click **Continue**.
- Note:** For more information on working with configurations, see the *User Guide and Online Help*.
- j Optionally, delete the **/data\_stub** directory and its contents. These files are no longer needed.

## Importing the Sample Topic Workflow Configuration (installation only)

This section describes how to import the Sample Topic Workflow Configuration for use in the Empirica Signal application.

These steps are required only if you intend to use the Topics feature and you have performed the steps in Setting up the Topic Workflow database account (installation only). However, Oracle recommends that you perform these steps so that you will have a sample configuration to copy and use as a template for new configurations. Do not edit the sample configuration.

- 1 Log in to the Empirica Signal application using the **admin** username.
- 2 Click **Settings**, and click **Manage Topic Workflow Configurations**.
- 3 Click **Import Workflow Configuration Account**.

A dialog box appears, asking you to confirm the restoration. This message appears even if no topic workflow configurations were deleted.

- 4 Click **OK**.
- 5 Type the following account name:  
`TOPIC_WORKFLOW`
- 6 Click **Import**.
- 7 Verify that the Sample Topic Workflow Configuration is listed on the Manage Topic Workflow Configurations page.

For information about working with topic workflow configurations, see the *User Guide and Online Help*.

## CHAPTER 8

# Upgrading from release 8.1 or 8.1.0.1 to 8.1.0.2

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## Required privileges for the application server

To upgrade from Empirica Signal release 8.1 or 8.1.0.1 to release 8.1.0.2, you must have access to the following accounts on the application server:

- A user account that allows the user to start and stop the Empirica Signal Oracle WebLogic Server instance. Unless otherwise specified in this document, this user must perform all activities.

**Note:** This account must not have sudo privileges. This document refers to this user account as the non-privileged user account on the application server.

- A user account that has sudo privileges. This user executes certain steps as root.

**Note:** This document refers to this user account as the privileged user account on the application server.

# Unpacking Empirica Signal 8.1.0.2 files into the installation directory

Perform these steps using the non-privileged user account on the application server.

- 1 Move the `<INSTALL_DIR>/Signal` directory to `<INSTALL_DIR>/Signal_8_1` as backup. For example:

```
mv /u01/stage/Signal_Install/Signal /u01/stage/Signal_Install/Signal_8_1
```

- 2 Make a new `<INSTALL_DIR>/Signal` directory. For example:

```
mkdir /u01/stage/Signal_Install/Signal
```

- 3 In a command shell, navigate to the directory containing **Signal-8\_1\_0\_2\_XXX.zip** and unpack its contents into the `<INSTALL_DIR>/Signal` directory. For example:

```
$ unzip Signal-8_1_0_2_XXX.zip -d /u01/stage/Signal_Install/Signal
```

- 4 Provide the non-privileged account execute permission on the MGPS subdirectory. For example:

```
$ chmod u+x /u01/stage/Signal_Install/Signal/WEB-INF/classes/MGPS
```

**Note: If you don't use Empirica Topics, skip to the next section.**

- 5 Move the `<INSTALL_DIR>/TopicsService` directory to `<INSTALL_DIR>/TopicsService_8_1` as backup. For example:

```
mv /u01/stage/Signal_Install/TopicsService  
/u01/stage/Signal_Install/TopicsService_8_1
```

- 6 Make a new `<INSTALL_DIR>/TopicsService` directory. For example:

```
mkdir /u01/stage/Signal_Install/TopicsService
```

- 7 Navigate to the directory containing **TopicsService-8\_1\_0\_2\_XXX.zip** and unpack its contents into the `<INSTALL_DIR>/TopicsService` directory. For example:

```
$ unzip TopicsService-8_1_0_2_XXX.zip -d  
/u01/stage/Signal_Install/TopicsService
```

## Installing the RGPS add-on package to the R library

If you have R version 3.0.1 installed, you can optionally install the RGPS add-on package to enable Regression-adjusted Gamma Poisson Shrinker (RGPS) computations in Multi-item Gamma Poisson Shrinker (MGPS) data mining runs. For more information, see the *User Guide and Online Help*.

Perform the following steps to install RGPS.

**Note:** If you are upgrading from 8.1.0.1 and you have decided to use RGPS, perform this step to upgrade RGPS to the latest version.

The RGPS add-on package is included with the Empirica Signal installation files.

Perform these steps using the privileged user account on the application server.

- 1 In a command shell, navigate to the directory containing **RGPS\_8\_1\_0\_2\_XXX.tar.gz**.
- 2 Execute the following command:

```
$ sudo R CMD INSTALL RGPS_8_1_0_2_XXX.tar.gz
```

# Setting up the Empirica Signal properties files

## Restoring site-specific properties files

Perform these steps using the non-privileged user account on the application server.

- 1 In a command shell, navigate to the backup directory `<INSTALL_DIR>/Signal_8_1/WEB-INF/classes`.
- 2 Copy the **webvdme.properties** file to the installation area. For example:
 

```
$ cp webvdme.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 3 Copy the **listener.properties** file to the installation area. For example:
 

```
$ cp listener.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 4 Copy the **report\_listener.properties** file to the installation area. For example:
 

```
$ cp report_listener.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 5 Copy the **webvdme-fonts.properties** file to the installation area. For example:
 

```
$ cp webvdme-fonts.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 6 Copy the **log4j.properties** file to the installation area, overwriting the existing file. For example:
 

```
$ cp -f log4j.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 7 If Empirica Signal is integrated with LDAP, copy the **ldap.properties** file to the installation area. For example:
 

```
$ cp ldap.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```

**Note:** If you don't use Empirica Topics, skip to the next section.

- 8 In a command shell, navigate to the backup directory `<INSTALL_DIR>/TopicsService_8_1/WEB-INF/classes`.
- 9 Copy the **webvdme.properties** file to the installation area. For example:
 

```
$ cp webvdme.properties /u01/stage/Signal_Install/TopicsService/WEB-INF/classes
```
- 10 Copy the **log4j.properties** file to the installation area, overwriting the existing file. For example:
 

```
$ cp -f log4j.properties /u01/stage/Signal_Install/TopicsService/WEB-INF/classes
```

## Modifying webvdme.properties file

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory. For example:
 

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 2 Using a text editor, open the **webvdme.properties** file.

- 3 Add the following two lines under `# Topics Services`:
 

```
# Absolute maximum for the site option "Max number of bytes per file
allowed in topic attachments" in MBs
topicsService.maxAttachmentSizeMB=100
```
- 4 Save and close the file.

## Modifying listener.properties file

Perform these steps using the non-privileged user account on the application server.

- 1 Navigate to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory. For example:
 

```
$ cd /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
- 2 Using a text editor, open the `listener.properties` file.
- 3 Edit the parameters according to the following table.
 

If RGPS was already installed in 8.1.0.1, first three parameters may not need to be updated.

Parameter	Description	Example
<code>r_path</code>	If R version 3.0.1 is installed on your application server, specify the path to the directory where R is installed.	<code>r_path=/usr/lib64/R</code>
<code>rgps_command</code>	If R version 3.0.1 is installed on your application server and you want to enable Regression-adjusted Gamma Poisson Shrinker (RGPS) computations, specify the path to the command that starts R.  You can execute the <code>which R</code> command to determine the path.  For more information, see Installing the RGPS add-on package to the R library.	<code>rgps_command=/usr/bin/R</code>
<code>rgps_cpus_count</code>	Maximum Number of CPU cores to use in RGPS execution.  This value should be less than the total number of CPU cores on the machine. A larger number will speed up RGPS execution but may affect other activities on the application server.	<code>rgps_cpus_count=2</code>
<code>mgps_prr_mem_limit</code>	For the property <code>mgps_prr_mem_limit</code> , Signal 7.3 had a default value of 527343. Signal 8.x requires double the amount that was needed in version 7.3, with the default being 1054686.	<code>mgps_prr_mem_limit=1054686</code>

- 4 Save and close the file.



## Preserving WebLogic deployment files

Perform these steps using the non-privileged user account on the application server.

- 1 In a command shell, navigate to the backup directory **<INSTALL\_DIR>/Signal\_8\_1**.
- 2 If a Plan.xml file exists, copy it to the Signal installation area. For example:  

```
$ cp Plan.xml /u01/stage/Signal_Install/Signal
```
- 3 Navigate to the backup directory **<INSTALL\_DIR>/TopicsService\_8\_1**.
- 4 If a Plan.xml file exists, copy it to the TopicsService installation area. For example:  

```
$ cp Plan.xml /u01/stage/Signal_Install/TopicsService
```

## Preserving custom home pages, images, and release notes from a previous release (upgrade only)

Perform these steps using the non-privileged user account on the application server.

Perform these steps to preserve any customizations you made to 8.1 or 8.1.0.1, and to copy *Release Notes* documents from previous releases.

- 1 Copy any relevant *Release Notes* documents from the previous installation location to the new installation location. For example, copy the *Release Notes* documents from the following location:

```
/u01/stage/Signal_Install/Signal_8_1/relnotes
```

to the following location:

```
/u01/stage/Signal_Install/Signal/relnotes
```

**Note:** You do not need to copy the following documents: *Release Notes* documents for data releases that are no longer on your server, MedDRA documents for releases that are no longer on your server, *Release Notes* documents for prior releases of the Empirica Signal software, a PDF document of the *User Guide and Online Help* for prior releases, and the *Logistic Regression in Empirica Signal 7.1 PDF* document.

- 2 Copy any custom content, such as custom home pages, from the backup location to the installation location. For example, copy your file from the following location:

```
/u01/stage/Signal_Install/Signal_8_1/customhomes
```

to the following location:

```
/u01/stage/Signal_Install/Signal/customhomes
```

- 3 Copy any custom images from the backup location to the installation location. For example, copy your file from the following location:

```
/u01/stage/Signal_Install/Signal_8_1/image
```

to the following location:

```
/u01/stage/Signal_Install/Signal/image
```

## Making the Release Notes available within the application

- 1 Obtain the most recent version of the Release Notes. For more information, see *About the documentation* (on page 129).
- 2 Copy the Release Notes to `<INSTALL_DIR>/Signal/relnotes`. For example:

```
/u01/stage/Signal_Install/Signal/relnotes
```

## Deploying the Empirica Signal application

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console. For example:  
`https://<servername>:7002/console`
- 2 Log in using administrator credentials.
- 3 In the Domain Structure pane, click **Deployments**.
- 4 In the Change Center pane, click **Lock & Edit**.
- 5 In the Deployments table, select the **Signal** checkbox.
- 6 Click **Update**.
- 7 Click **Next**, then click **Finish**.
- 8 Once the application has deployed successfully, in the left panel, click **Activate Changes**.
- 9 In the Domain Structure section on the left, expand **Environment**, then choose **Servers**.
- 10 In the Control tab, select the **SignalServer** checkbox, then click **Shutdown**.
- 11 Select **Force Shutdown Now**, then click **Yes**.
- 12 Refresh until State is **SHUTDOWN**.
- 13 Select the **SignalServer** checkbox, then click **Start**.
- 14 On the Start Server page, click **Yes** to start the server.
- 15 Refresh until State is **RUNNING**.
- 16 Log out.

## Deploying the Empirica Topics web service

**Note:** If you don't use Empirica Topics, skip to the next section.

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console. For example:  
`https://<servername>:7002/console`
- 2 Log in using the administrator credentials.
- 3 In the Domain Structure pane, click **Deployments**.
- 4 In the Change Center pane, click **Lock & Edit**.
- 5 In the Deployments table, select the **TopicsService** checkbox.
- 6 Click **Update**.
- 7 Click **Next**, then click **Finish**.
- 8 Once the application has deployed successfully, in the left panel, click **Activate Changes**.
- 9 In the Domain Structure section on the left, expand **Environment**, then choose **Servers**.
- 10 In the Control tab, select the **TopicsServer** checkbox, then click **Shutdown**.
- 11 Select **Force Shutdown Now**, then click **Yes**.
- 12 Refresh until State is **SHUTDOWN**.
- 13 Select the **TopicsServer** checkbox, then click **Start**.
- 14 Select **Servicing all requests**, then click **Yes**.
- 15 Refresh until State is **RUNNING**.
- 16 Log out.

## Deploying the Empirica Topics web service

**Note:** If you don't use Empirica Topics, skip to the next section.

- 1 In an Internet browser, navigate to the Oracle WebLogic Server Administration Console. For example:  
`https://<servername>:7002/console`
- 2 Log in using the administrator credentials.
- 3 In the Domain Structure pane, click **Deployments**.
- 4 In the Change Center pane, click **Lock & Edit**.
- 5 In the Deployments table, select the **TopicsService** checkbox.
- 6 Click **Update**.
- 7 Click **Next**, then click **Finish**.
- 8 Once the application has deployed successfully, in the left panel, click **Activate Changes**.
- 9 In the Domain Structure section on the left, expand **Environment**, then choose **Servers**.
- 10 In the Control tab, select the **TopicsServer** checkbox, then click **Shutdown**.
- 11 Select **Force Shutdown Now**, then click **Yes**.
- 12 Refresh until State is **SHUTDOWN**.
- 13 Select the **TopicsServer** checkbox, then click **Start**.
- 14 On the Start Server page, click **Yes** to start the server.
- 15 Refresh until State is **RUNNING**.
- 16 Log out.

## Configuring the Empirica Signal software for RGPS

The following steps assume the following prerequisites are met:

- R version 3.0.1 is installed.
- RGPS add-on package is installed.
- RGPS parameters are set in the listener.properties file.

To enable RGPS computations in MGPS data mining runs:

- 1 In a Microsoft Internet Explorer browser window, navigate to the Empirica Signal login page. For example:

```
https://<server name>:7004/Signal
```

**Note:** This example is for a site that requires SSL and does not use single sign-on.

If your site does not require SSL connections, use:

```
http://<server name>:7003/Signal
```

- 2 If your site uses SSO, use the native login port provided to you by Oracle or the administrator who configured SSO for the application.
- 3 Log in as the **admin** user.
- 4 Click **Settings**, then click **Set Site Options**.
- 5 Select **Enable RGPS Option in MGPS Data Mining Runs**.
- 6 Click **Save**.
- 7 Click **Exit**.

# CHAPTER 9

## Troubleshooting

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## Issue: An error occurs when you try to log in because the application cannot connect to the database.

Resolution:

Try these steps in order, testing after each step to determine whether the issue is resolved.

- 1 Restart WebLogic using the following commands:

```
$ ./stopWebLogic.sh
$ nohup ./startWebLogic.sh > /dev/null &
```
- 2 In the WebLogic Administration Console, verify that the data source user name is set up as **EMPIRICA\_OPSS** with the correct password. Test the connection.
- 3 In the Oracle Enterprise Manager, under System Policies, verify the codebase paths match the installation.
- 4 To check for specific permission errors, enable debugging, and examine error messages in the log file:
  - a Open the WebLogic start script (**startWebLogic.sh**) in your domain directory, for example:

```
/u01/app/oracle/Middleware/user_projects/domains/empirica/bin
```
  - b Add the following text below the **# START WEBLOGIC** entry in the file:

```
JAVA_OPTIONS="${JAVA_OPTIONS} -Djava.security.debug=access,failure -
Djps.auth.debug=true -Djps.auth.debug.verbose=true"
```
  - c Restart WebLogic using the following commands:

```
$ ./stopWebLogic.sh
$ nohup ./startWebLogic.sh > /dev/null &
```
  - d Examine the **startWebLogic.sh** output to see whether it contains the following permission error:

```
java.security.AccessControlException: access denied
```
  - e If the error exists, look below the error at the code source, such as the following text:

```
CodeSource=file:/u01/app/oracle/product/Middleware/user_projects/domains
/empirica/servers/SignalServer/stage/Signal/Signal/...
```
  - f In Enterprise Manager, update the permission codebase paths in System Policies to reflect the missing permission.
  - g Restart WebLogic using the following commands:

```
$ ./stopWebLogic.sh
$ nohup ./startWebLogic.sh > /dev/null &
```
  - h After the permission issue is resolved, remove the debug options, and start WebLogic using the following commands:

```
$ ./stopWebLogic.sh
$ nohup ./startWebLogic.sh > /dev/null &
```



## Issue: The password for the OPSS database account changes.

This issue occurs when the password for the **EMPIRICA\_OPSS** account expires or changes, for example, due to password expiration policies.

Resolution:

You must register the new password in the following locations:

- The bootstrap wallet file.
  - a In a command shell, navigate to the directory for the bootstrap wallet file using a command such as:

```
$ cd /u01/app/oracle/Middleware/user-projects/domains/empirica/config/fmwconfig.
```

- b In a command shell, start **WLST** using a command such as:

```
$ /u01/app/oracle/Middleware/oracle_common/common/bin/wlst.sh
```

The following prompt appears:

```
wls:/offline>
```

- c Execute the following command:

```
modifyBootStrapCredential(jpsConfigFile='./jps-config.xml',
username='<user>', password='<new password>')
```

where:

- *<user>* is the name of the OPSS schema database account, such as **EMPIRICA\_OPSS**.
  - *<new password>* is the new password of the OPSS schema database account.
- d To exit WLST, execute the **exit()** command.
- The data source associated with the OPSS schema database account.
    - a Open the WebLogic Administration Console.
    - b Expand **Services**, and select **Data Sources**.
    - c Select the **Data Source** entry.
 

If you followed the recommendations in *Creating a data source for credential access* (on page 108), the data source is named **Empirica Credential Store**, and the JDNI name is **jdbc/mds/opss**.
    - d Select the **Configuration** tab, and select the **Connection Pool** tab.
    - e In the Change Center section on the left, click **Lock & Edit**.
    - f Scroll to the **Password** and **Confirm Password** fields.
    - g Type the account password in both fields, and click **Save**.
    - h In the Change Center section on the left, click **Activate Changes**.

## Issue: The password for the MDS account changes.

This issue occurs when the password for the **EMPIRICA\_MDS** account expires or changes, for example, due to password expiration policies.

Perform the following steps to register the new password in the data source associated with the MDS schema database account.

- 1 Open the WebLogic Administration Console.
- 2 Expand **Services**, and select **Data Sources**.
- 3 Select the **Data Source** entry.
- 4 Select the **mds-owsm** data source.
- 5 Select the **Configuration** tab, and select the **Connection Pool** tab.
- 6 In the Change Center section on the left, click **Lock & Edit**.
- 7 Scroll to the **Password** and **Confirm Password** fields.
- 8 Type the account password in both fields, and click **Save**.
- 9 In the Change Center section on the left, click **Activate Changes**.

# APPENDIX A

## Single sign-on (SSO)

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----------------------------------------------	----

## Setting up Oracle Access Manager (OAM)

To configure the Empirica Signal application to use single sign-on (SSO) using Oracle Access Manager (OAM), an OAM administrator runs the OAM register script. This script creates an OAM agent and uses an XML file as input, such as the following XML sample.

Replace the bold values with appropriate values for your installation. In the following example, EmpiricaSignal is the name of your registered SSO agent or Webgate ID. The name must be unique in the OAM environment.

```
<?xml version="1.0" encoding="UTF-8"?>
<OAMRegRequest>
  <serverAddress>https://<OAM_server>.oracle.com:7004</serverAddress>
  <hostIdentifier>EmpiricaSignal</hostIdentifier>
  <agentName>EmpiricaSignal</agentName>
  <cachePragmaHeader>private</cachePragmaHeader>
  <cacheControlHeader>private</cacheControlHeader>
  <protectedResourcesList>
    <resource>/EmpiricaSignal</resource>
    <resource>/EmpiricaSignal</resource>
  </protectedResourcesList>
  <publicResourcesList>
    <resource>/index.html</resource>
    <resource>/Signal/ping.jsp</resource>
    <resource>/Signal/utlLogout.jsp</resource>
    <resource>/Signal/logout.inc</resource>
    <resource>/Signal/css/*</resource>
  </publicResourcesList>
  <excludedResourcesList>
    <resource>/Signal/servlet/event</resource>
    <resource>/Signal/servlet/event</resource>
  </excludedResourcesList>
</OAMRegRequest>
```

## APPENDIX B

# Getting the application server ready for Empirica Signal with WebLogic 12c

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# About getting the application server ready for Empirica Signal with WebLogic 12c

You must perform the procedures in this appendix before you install the Empirica Signal application.

For information about the required versions of each component and where to download the components, see the System Requirements chapter in the *Release Notes*.

**Note:** For any input, do not include trailing whitespace. Most text is case sensitive. Paths might vary depending on your environment.

## Prerequisites

- JDK version 8 update 111 (or later) must be installed on the application server.
- The application server must have enough free space. For more information, see the System Requirements section in the *Release Notes*.
- Oracle 12c database must be installed on the DB server.

**Note:** You must have access to a database account with SYSDBA privileges.

- Oracle 12c database client must be installed on the application server.

## Setting environment variables

In this procedure, you edit configuration scripts, which set environment variables for the command shells you use. You must log out and log in again for the changes you make in this section to take effect.

In this section, you configure environment variables for your application server using your privileged account and using `sudo`. This section requires you to edit files, using commands such as the following. The first command logs you in as root. If you are prompted for your password after typing this command, type your password, not the password of root.

```
$ sudo su - root
# vi <file_name>
# exit
```

To set environment variables:

- 1 Edit the `/etc/profile` file, as follows
  - a Add the following lines to the file.

```
ORACLE_BASE=/u01/app/oracle
ORACLE_HOME=/u01/app/oracle/product/12.1.0
ORACLE_SID=<server_sid>
NLS_LANG=AMERICAN_AMERICA.AL32UTF8
JAVA_HOME=<jdk_home_location>
export ORACLE_BASE ORACLE_HOME ORACLE_SID NLS_LANG JAVA_HOME
```

**Note:** For the values in the first two lines, use information about your Oracle client installation. For `<jdk_home_location>`, use the location where the JDK is installed.

- b Add the bin directories of your Oracle client and Java installations to the PATH variable. For example, add the following line as the last line where the PATH variable is set:

```
export PATH=$ORACLE_HOME/bin:$JAVA_HOME/bin:$PATH
```

- 2 Edit the /etc/csh.login file, as follows:

- a Add the following lines to the file.

```
setenv ORACLE_BASE /u01/app/oracle
setenv ORACLE_HOME /u01/app/oracle/product/12.1.0
setenv ORACLE_SID <server_sid>
setenv NLS_LANG AMERICAN_AMERICA.AL32UTF8
setenv JAVA_HOME <jdk_home_location>
```

**Note:** For the values in the first two lines, use information about your Oracle client installation. For <jdk\_home\_location>, use the location where the JDK is installed.

- b Add the bin directories of your Oracle client and Java installations to the PATH variable. For example, add the following line as the last line where the PATH variable is set:

```
setenv PATH ${ORACLE_HOME}/bin:${JAVA_HOME}/bin:${PATH}
```

## Installing WebLogic

To download WebLogic 12c:

- 1 Go to <http://www.oracle.com/technetwork/middleware/weblogic/downloads/wls-main-097127.html> or to <http://edelivery.oracle.com>.
- 2 Under Oracle WebLogic Server 12.1.3, select **Generic**.

Perform these steps using the non-privileged user account on the application server.

To install WebLogic 12c:

**Note: The following steps describe the graphical mode for installing WebLogic. You must set the DISPLAY environment variable before running the installer.**

- 1 In the command shell, run the following:

```
java -jar fmw_12.1.3.0.0_wls.jar
```

WebLogic Fusion Middleware 12c WebLogic Server and Coherence Installation is launched.

**Note: If the wizard does not start, verify if the display property is correctly set. From the shell, execute the following command: `xclock`.**

- 2 Click **Next**.  
The Installation Location page appears.
- 3 Type the appropriate location for Oracle Home. For example:  
`/u01/app/oracle/product/weblogic12c/Middleware`
- 4 Click **Next**.  
The Installation Type page appears.
- 5 Select **Weblogic Server**.
- 6 Click **Next**.  
The Prerequisite Checks page appears.
- 7 Click **Next**.  
The Security Updates page appears.
- 8 Enter your email address or uncheck the option to receive security updates.
- 9 Click **Yes**, then click **Next**.  
The Installation Summary page appears.
- 10 Verify the installation summary information and click **Install**.  
The Installation Progress page appears.
- 11 When progress status is 100%, click **Next**.  
The Installation Complete page appears.
- 12 Click **Finish**.
- 13 Click **Cancel**.



# Installing Oracle ADF Runtime

To download Oracle ADF Runtime 12c:

- 1 Go to <http://www.oracle.com/technetwork/developer-tools/adf/downloads/index.html> or to <http://edelivery.oracle.com>.
- 2 Under Application Development Runtime, select version 12.1.3.0 and download the file.
- 3 Save the `fmw_12.1.3.0.0_infrastructure_Disk1_1of1.zip` file in the following location:  
`/u01/stage/ADF`
- 4 Extract the archive file.

To install Oracle ADF Runtime 12c:

- 1 From the shell, change to the location where the extracted ADF jar file is located. For example:  

```
$ cd /u01/stage/ADF
```
- 2 Execute the following command:  

```
$ java -jar fmw_12.1.3.0.0_infrastructure.jar
```

**Note:** Ignore the error about the monitor. When confirmation is asked, type **Y** and click the **Return** key.

The ADF installation wizard is launched.

- 3 Click **Next**.

The Installation Location page appears.

- 4 For the Oracle Home, enter the directory created during WebLogic 12c installation. For example:

```
/u01/app/oracle/product/weblogic12c/Middleware
```

- 5 Click **Next**.

The Installation Type page appears.

- 6 Select **Fusion Middleware Infrastructure**.

- 7 Click **Next**.

The Prerequisite Checks page appears.

- 8 When prerequisite checks status is 100%, click **Next**.

The Installation Summary page appears.

- 9 Verify the installation summary information and click **Install**.

The Installation Progress page appears.

- 10 When progress status is 100%, click **Next**.

The Installation Complete page appears.

- 11 Click **Finish**.

# Installing Oracle Fusion Middleware Repository Creation Utility (RCU) and creating repositories

- 1 To locate the RCU shell script, go to `<Middleware_Home>/oracle_common/bin`. For example:

```
/u01/app/oracle/product/weblogic12c/Middleware/oracle_common/bin
```

- 2 Execute the following command:

```
$ ./rcu
```

The Repository Creation Utility is launched.

- 3 Click **Next**.

The Create Repository page appears.

- 4 Under **Create Repository**, select **System Load and Product Load**.

- 5 Click **Next**.

The Database Connection Details page appears.

- 6 From the Database Type drop-down list, select **Oracle Database**.

- 7 Type the database information, including a user name with SYSDBA privileges.

**Note:** Use the host name, port number, and service name values from the tnsnames.ora file of the database where you are creating the repository.

- 8 From the Role drop-down list, select **SYSDBA**.

- 9 Click **Next**.

The Checking Prerequisites dialog box appears.

- 10 When checking is complete, click **OK**.

The Select Components page appears.

- 11 In the Create new prefix field, type a prefix, such as **EMPIRICA**.

- 12 Expand **AS Common Schemas**.

- 13 Select **Metadata Services** and **Oracle Platform Security Services**.

Audit-related checkboxes are automatically selected.

- 14 Click **Next**.

The Repository Creation Utility - Checking Prerequisites dialog box appears.

- 15 Click **OK**.

The Schema Passwords page appears.

- 16 Specify the schema passwords and click **Next**.

**Note:** Keep the schema passwords for future reference.

The **Map Tablespaces** page appears.

- 17 Click **Next**.

A confirmation dialog box appears.

- 18 Click **OK**.

Tablespaces are validated and created.

- 19 Click **OK**.

The Summary page appears.

- 20 Click **Create**.

After the repository is created, the Completion Summary page appears.

- 21 Click **Close**.

# Setting up the WebLogic domain

## Creating and configuring the WebLogic domain

1 In a command shell, go to `<Middleware_Home>/wlserver/common/bin`. For example:  
`/u01/app/oracle/product/weblogic12c/Middleware/wlserver/common/bin`

2 Execute the following command:

```
./config.sh &
```

**Note:** If you get a permission error, change permissions on `config.sh` to `chmod u+x config.sh`.

The Fusion Middleware Configuration Wizard is launched.

3 Select **Create a new domain** and specify the domain location, for example:

```
/u01/app/oracle/product/weblogic12c/Middleware/user_projects/domains/empirica
```

where **empirica** is the domain name.

4 Click **Next**.

The Templates page appears.

5 Select **Create Domain Using Product Templates**.

6 From the Template Categories drop-down list, select **All Templates**.

7 From the Available Templates list, select the following templates:

- Basic WebLogic Server Domain - 12.1.3.0 [wlserver]
- Oracle Enterprise Manager - 12.1.3.0 [em]
- Oracle WSM Policy Manager - 12.1.3.0 [oracle\_common]
- Oracle JRF - 12.1.3.0 [oracle\_common]
- WebLogic Coherence Cluster Extension - 12.1.3.0 [wlserver]

8 Click **Next**.

The Application Location page appears.

9 Check the Domain name, Domain location, and Application location.

10 Click **Next**.

The Administrator Account page appears.

11 Type a user name and password for WebLogic administration.

**Note:** You will use these credentials to administer the WebLogic instance.

12 Click **Next**.

The Domain Mode and JDK page appears.

13 Select **Production** and check the JDK location.

14 Click **Next**.

The Database Configuration Type page appears.

15 Select **RCU Data**.

16 Enter the database connection details:

- **Vendor**—Select **Oracle**.
- **Driver**—Select the Oracle thin driver for service connections.
- **DBMS/Service**—Use the service name for your database.
- **Host Name**—Use your database host name.
- **Port**—Specify the port number for the Oracle database service.
- **Schema Owner**—Type a value such as **EMPIRICA\_STB**.
- **Schema Password**—Type the password that you used when you created the schema in Installing Oracle Fusion Middleware Repository Creation Utility (RCU) and creating repositories.

17 Click **Get RCU Configuration**.

18 Click **Next**.

The JDBC Component Schema page appears.

19 Select all checkboxes.

20 Click **Next**.

The JDBC Component Schema Test page appears.

21 After all connections have been tested successfully, click **Next**.

The Advanced Configuration page appears.

22 Select the following checkboxes:

- Administration Server
- Node Manager
- Managed Servers, Clusters and Coherence
- Deployments and Services

23 Click **Next**.

The Administration Server page appears.

24 Select **Enable SSL**.

25 Specify **SSL Listen Port** 7002.

26 Click **Next**.

The Node Manager page appears.

27 Specify the domain location and enter node manager credentials.

**Note: Keep the node manager credentials for future reference.**

28 Click **Next**.

The Managed Servers page appears.

29 Click **Add** and create a server with the following details:

- **Server Name**—*SignalServer*
- **Listen Address**—*<the full name of the application server>*
- **Listen Port**—*7003*
- **Enable SSL**—*<selected>*
- **SSL Listen Port**—*7004*
- **Server Groups**—*Unspecified*

30 Click **Add** and create a server with the following details:

- **Server Name**—*TopicsServer*
- **Listen Address**—*<the full name of the application server>*
- **Listen Port**—*7005*
- **Enable SSL**—*<selected>*
- **SSL Listen Port**—*7006*
- **Server Groups**—*Unspecified*

31 Click **Next**.

The Clusters page appears.

32 Click **Next**.

The Coherence Clusters page appears.

33 Click **Next**.

The Machines page appears.

34 Select the Unix Machine tab.

35 Click **Add** and create a machine with the following details:

- **Name**—*SignalMachine*
- **Node Manager Listen Address**—*<the full name of the application server>*
- **Node Manager Listen Port**—*5556*

36 Click **Next**.

The Assign Servers to Machines page appears.

37 From the Servers list, select **SignalServer** and **TopicsServer** and move them to the Machines list.

38 Click **Next**.

The Deployments Targeting page appears.

39 Assign a deployment to the AdminServer:

- In the list of Target Servers on the right, select **AdminServer**.
- If not already listed under AdminServer on the right, select the following Applications on the left and move them to the AdminServer target to augment the list of Applications:

- **wsil-wls#12.1.3.0.0**
  - **wsm-pm**
- 40 Assign a deployment to the SignalServer:
- In the list of Target Servers on the right, select **SignalServer**.
  - Make sure only the following options appear on the right, under Application:
    - **wsil-wls#12.1.3.0.0**
    - **wsm-pm**
- 41 Repeat step 40 for **TopicsServer**.
- 42 If not already listed, add the following classes to **SignalServer**.
- From the Startup Class directory:
    - JPS Startup Class
    - JPS Startup Post-Activation Class
    - JRF Startup Class
  - From the JDBC System Resource directory, all services.
- 43 Repeat step 42 for **TopicsServer**.
- 44 Click **Next**.
- The Configuration Summary page appears.
- 45 Click **Create**.
- The Configuration Progress page appears.
- When the configuration is complete, a message appears stating that the domain has been created.
- 46 Click **Next**.
- The Configuration Success page appears.
- 47 Click **Finish**.

## Creating a boot identity file

A boot identity file contains the user credentials for starting and stopping an instance of WebLogic Server. An administration server or managed server can refer to this file for user credentials instead of prompting at the command line to provide them. Because the credentials are encrypted, using a boot identity file is more secure than storing plain text credentials in a startup or shutdown script. There can be a different boot identity file for each server in a domain.

For the Production Mode domain, you can create the boot identity file manually, as explained below.

- 1 Check that the following directory is present in the domain directory:

```
$WL_HOME/user_projects/domains/<domain_name>/servers/AdminServer
```

**Note:** If the directory is not present, the server has not yet been started after WebLogic 12c server installation. Start the AdminServer using the `./startWebLogic.sh` command from the `$WL_HOME/user_projects/domains/<domain_name>/bin` directory.

- 2 If the AdminServer was started with the start script in a Terminal window, click Ctrl + C in that window to stop the server.
- 3 Navigate to the domain directory `$WL_HOME/user_projects/domains/<domain_name>/servers/AdminServer` directory, for example:  

```
/u01/app/oracle/product/weblogic12c/Middleware/user_projects/domains/empirica/servers/AdminServer
```
- 4 Create a subdirectory called **security**.
- 5 Navigate to the **security** directory and execute the following command:  

```
$ cat - > boot.properties
username=weblogic
password=<domain_password>
```
- 6 To save the file and exit the editor, press **Ctrl+D**.
- 7 From the `$WL_HOME/user_projects/domains/<domain_name>/bin` directory, restart the server using the `./startWebLogic.sh` command.
- 8 When messages that say **RUNNING** appear, press **Ctrl+C**.
- 9 From the `$WL_HOME/user_projects/domains/<domain_name>/servers/AdminServer/security` directory, execute `cat boot.properties` to verify that:
  - The user name and password have been encrypted by the server.
  - A comment has been added with the timestamp when encryption occurred.

## Creating the nodemanager.properties file

Perform these steps as the non-privileged user on the application server.

- 1 Navigate to the `$WL_HOME/user_projects/domains/empirica/bin` directory. For example:  

```
/u01/app/oracle/product/weblogic12c/Middleware/user_projects/domains/empirica/bin
```
- 2 Start the Node Manager by executing the following command:  

```
$ ./startNodeManager.sh <listen_address> 5556
```

where `<listen_address>` is the value you entered in Creating and configuring the WebLogic domain.
- 3 After the console says `<secure socket listener started on port 5556>`, press **Ctrl+C**.  
The Node Manager stops.
- 4 Navigate to the `$WL_HOME/user_projects/domains/empirica/nodemanager` directory. For example:  

```
/u01/app/oracle/product/weblogic12c/Middleware/user_projects/domains/empirica/nodemanager
```
- 5 Review the `nodemanager.properties` file:
  - a Edit the `nodemanager.properties` file. For example:  

```
$ vi nodemanager.properties
```



- b Set the values of the following properties to **true**:
  - SecureListener

**Note: For a non-SSL environment, set this property to false.**

  - StopScriptEnabled
  - StartScriptEnabled
- 6 Save the file, and exit the vi editor.

## Starting WebLogic and the Node Manager

- 1 Navigate to the \$WL\_HOME/user\_projects/domains/<domain\_name>/bin directory, using a command such as the following:
 

```
/u01/app/oracle/product/weblogic12c/Middleware/user_projects/domains/empirica/bin
```
- 2 Execute the following command:
 

```
nohup ./startNodeManager.sh &
```
- 3 To restart the administration server, execute the following command:
 

```
nohup ./startWebLogic.sh > /dev/null &
```
- 4 Verify that the Node Manager can be reached:
  - a In an Internet browser, enter the URL for the WebLogic Administration Console, such as the following:
 

```
https://<servername>:7002/console
```
  - b Log in using the WebLogic administrator credentials.
  - c In the left pane, expand **Environment**, and select **Machines**.  
The Summary of Machines page appears.
  - d In the list of machines, select **SignalMachine**.  
The Settings for SignalMachine page appears.
  - e Select the **Monitoring** tab.
  - f Confirm that the status is **Reachable**. If the status is Inactive, the Node Manager is not running.
- 5 Start Managed Servers using the Node Manager:
  - a In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:
 

```
https://<servername>:7002/console
```
  - b Log in using the WebLogic administrator credentials.
  - c In the left pane, expand **Environment**, and select **Servers**.
  - d Select the **Control** tab.
  - e Select **SignalServer** and **TopicsServer**, and click **Start**.

- f Click **Yes**.
- 6 Apply the JRF Template to the Managed Server:
  - a In an internet browser, enter the URL for the Oracle Enterprise Manager, such as the following:  
`https://<servername>:7002/em`
  - b Log in using the WebLogic administrator credentials.
  - c In the left pane, expand **Weblogic Domain**, expand **empirica**, and select the **SignalServer**.
  - d Click **Apply JRF Template**, located at the top of the page.
  - e In the left pane, expand **WebLogic Domain**, expand **signal**, and select the **TopicsServer**.
  - f Click **Apply JRF Template**, located at the top of the page.
- 7 Restart the SignalServer and TopicsServer managed servers:
  - a In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:  
`https://<servername>:7002/console`
  - b Log in using the WebLogic administrator credentials.
  - c In the left pane, expand **Environment**, and select **Servers**.  
The Summary of Servers page appears.
  - d Select the **Control** tab.
  - e From the list of servers, select **SignalServer** and **TopicsServer**.
  - f From the **Shutdown** drop-down list, select **Force Shutdown Now**.
  - g Click **Yes**.
  - h After the states of the SignalServer and TopicsServer change to Shutdown, select the checkboxes for **SignalServer** and **TopicsServer** in the table, and click **Start**.
  - i Click **Yes**.

## Creating a data source for credential access

To set up a data source in the WebLogic Administration Console for the credential store:

- 1 In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:  
`https://<servername>:7002/console`
- 2 In the left pane, expand **Services**, and select **Data Sources**.
- 3 In the upper-left corner of the page, in the Change Center section, click **Lock & Edit**.
- 4 In the right pane, click the **New** button, and from the drop-down list that appears, select **Generic Data Source**.  
The JDBC Data Source Properties page appears.
- 5 Type values for the following fields:
  - **Name**—For example, type **Empirica Credential Store**.

- **JNDI Name**—For example, type `jdbc/mds/opss`.
- 6 Click **Next**.  
The JDBC Data Source Properties page appears.
  - 7 From the Database Driver drop-down list, choose:
    - **Oracle Drive (Thin XA) for Instance Connections; Versions: Any**—to address your database using its instance name.
    - **Oracle Driver (Thin XA) for Service Connections; Versions: Any**—to address your database using its service name.

**Note:** For PDBs, use the version for service connections.

- 8 Click **Next**.  
The Transaction Options page appears.
- 9 Click **Next**.  
The Connection Properties page appears.
- 10 Fill in the following names:
  - **Database Name**—Depending on your driver choice, type the service name or SID.
  - **Host Name**
  - **Port**
  - **Database User Name**—For example, `EMPIRICA_OPSS`.
  - **Password, Confirm Password**—Type the password that you entered when you installed RCU.
- 11 Click **Next**.  
The Test Database Connection page appears.
- 12 At the top of the page, click **Test Configuration**.  
A Connection Test Succeeded message appears.
- 13 Click **Next**.  
The Select Targets page appears.
- 14 From the Servers list, select **AdminServer**, **SignalServer**, and **TopicsServer**.
- 15 Click **Finish**.
- 16 In the upper-left corner of the page, in the Change Center section, click **Activate Changes**.  
A message appears, indicating that the changes have been activated. The Credential Store Data Source entry is created.



# Getting the application server ready for the Empirica Signal application with WebLogic 11g

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## About getting the application server ready for Empirica Signal with WebLogic 11g

Perform the following steps before installing the Empirica Signal application:

- Install WebLogic.
- Install Oracle ADF Runtime.
- Install required database repositories.
- Perform additional setup tasks before installing the Empirica Signal software.

For information about the required versions of each component and the download location, see the System Requirements chapter in the *Release Notes*.

**Note:** For any input, do not include trailing whitespace. Most text is case-sensitive. Paths might vary depending on your environment.

# Installing WebLogic

Prerequisites:

- The user account you use for these steps must not be the root user.
- The following steps describe the graphical mode for installing WebLogic. Therefore, you must set the DISPLAY environment variable before running the installer.

To install WebLogic:

- 1 Log in to the application server as the non-privileged user.
- 2 Using a tool such as the tar command, unzip /u01/stage/V29856-01.zip file to the /u01/stage directory. For example, use the following command:

```
$ cd /u01/stage/  
$ mkdir weblogic  
$ cd weblogic  
$ unzip /u01/stage/V29856-01.zip
```

- 3 In a command shell, execute the following command:

```
$ java -jar wls1036_generic.jar
```

The Welcome page appears.

- 4 Click **Next**.

The Choose Middleware Home Directory page appears.

- 5 Select **Create a new Middleware Home**.

- 6 In the Middleware Home Directory field, browse to the Middleware directory, such as:

```
/u01/app/oracle/product/Middleware
```

- 7 Click **Next**.

The Register for Security Updates page appears.

- To receive security updates, leave **I wish to receive security updates** selected, and type your e-mail address and password for My Oracle Support.
- If you do not want to receive security updates, deselect **I wish to receive security updates**, and click **Yes** when prompted to confirm.

- 8 Click **Next**.

The Choose Products and Components page appears.

- 9 Select **Custom**, and click **Next**.

The Choose Products and Components page appears.

- 10 Deselect the following options:

- WebLogic Server
- Oracle Coherence

- 11 Select the following options:

- Core Application Server
- Administration Console
- Configuration Wizard and Upgrade Framework

12 Click **Next**.

The JDK Selection page appears.

13 In the Local JDK list at the bottom of the page, deselect any selected options.

14 Click **Browse**, and select the JDK 1.7 path, such as the following path:

`/u01/app/oracle/java/jdk1.7.x_xx.`

15 Click **Next**.

The Choose Product Installation Directories page appears.

16 Click **Next**.

The Installation Complete page appears.

17 Deselect **Run Quickstart**, and click **Done**.

18 Copy the following files from `$WL_HOME/modules` to `$JAVA_HOME/jre/lib/endorsed`, where `WL_HOME` is the WebLogic Server installation home directory:

- `javax.annotation_1.0.0.0_1-0.jar`
- `javax.xml.bind_2.1.1.jar`
- `javax.xml.ws_2.1.1.jar`



# Installing Oracle ADF Runtime

- 1 Log in to the application server as the non-privileged user.
- 2 Using a tool such as the tar command, unzip `/u01/V37382-01.zip` file to the `/u01/stage` directory. For example, use the following command:  

```
$ cd /u01/stage/  
$ mkdir adf  
$ cd adf  
$ unzip /u01/stage/V37382-01.zip
```
- 3 In a command shell, type the following command:  

```
$ cd disk1/install/linux64
```
- 4 Type the following command:  

```
$ ./runInstaller
```

Information about the Oracle Universal Installer appears. You are prompted to enter the JDK location.
- 5 Type the JDK directory. Replace the following directory with the path to your JDK, and change `XX` to your JDK version number:  

```
/u01/app/oracle/java/jdk1.7.X_XX
```

The Welcome page appears.
- 6 Click **Next**.  
The Install Software Updates page appears.
- 7 Select either **Skip Software Updates** or **Search My Oracle Support for Updates**.
- 8 If you selected Search My Oracle Support for Updates, type your My Oracle Support credentials.  

**Note: If an update is required, you are prompted to install it.**
- 9 Click **Next**.  
The Prerequisite Checks page appears.
- 10 Review the checks, and click **Next**.  
The Specify Installation Location page appears.
- 11 Make sure the Oracle Middleware Home field points to the directory created in the WebLogic installation.
- 12 Click **Next**.  
The Application Server page appears.
- 13 Click **Next**.  
The Installation Summary page appears.
- 14 Click **Install**.

The Installation Progress page appears.

15 After the installation completes, click **Next**.

The Installation Complete page appears.

16 Click **Finish**.

## Installing RCU and creating repositories

- 1 Log in to the application server as the non-privileged user.
- 2 Using a tool such as the tar command, unzip the /u01/V37394-01.zip file to the /u01/stage directory. For example, use the following command:  

```
$ cd /u01/stage/  
$ mkdir rcu  
$ cd rcu  
$ unzip /u01/stage/V37394-01.zip
```
- 3 In a command shell, type the following command:  

```
$ ./rcuHome/bin/rcu &
```

The Welcome page appears.
- 4 Click **Next**.  
The Create Repository page appears.
- 5 Click **Next**.  
The Database Connection Details page appears.
- 6 Type the database information, including a user name with sysdba privileges, and click **Next**.  
The Repository Creation Utility dialog box appears.
- 7 After the progress completes, click **OK**.  
The Select Components page appears.
- 8 Expand Oracle AS Common Schemas, and select **Metadata Services and Oracle Platform Security Services**.
- 9 In the Create a new Prefix field, type a prefix, such as **EMPIRICA**.
- 10 Click **Next**.  
The Repository Creation Utility - Checking Prerequisites dialog box appears.
- 11 Click **OK**.  
The Schema Passwords page appears.
- 12 Specify the schema passwords, and click **Next**.  

**Note: Remember these passwords.**

  
The Map Tablespaces page appears.
- 13 Click **Next**.  
The Repository Creation Utility - Confirmation dialog box appears.
- 14 Click **OK**.  
The Repository Creation Utility - Creating Tablespaces dialog box appears.
- 15 Click **OK**.

The Summary page appears.

16 Click **Create**.

The Completion Summary page appears.

17 Click **Close**.

# Setting up the WebLogic domain

## Setting environment variables

In this procedure, you edit configuration scripts, which set environment variables for the command shells you use. You must log out and log in again for the changes you make in this section to take effect.

In this section, you configure environment variables for your application server using your privileged account and using `sudo`. This section requires you to edit files, using commands such as the following. The first command logs you in as root. If you are prompted for your password after typing this command, type your password, not the password of root.

```
$ sudo su - root
# vi <file_name>
# exit
```

To set environment variables:

- 1 Edit the `/etc/profile` file, as follows:

- a Add the following lines to the file.

```
ORACLE_BASE=/u01/app/oracle
ORACLE_HOME=/u01/app/oracle/product/12.1.0
ORACLE_SID=<server_sid>
NLS_LANG=AMERICAN_AMERICA.AL32UTF8
JAVA_HOME=<jdk_home_location>
export ORACLE_BASE ORACLE_HOME ORACLE_SID NLS_LANG JAVA_HOME
```

**Note:** For the values in the first two lines, use information about your Oracle client installation. For `<jdk_home_location>`, use the location where the JDK is installed.

- b Add the bin directories of your Oracle client and Java installations to the `PATH` variable. For example, add the following line as the last line where the `PATH` variable is set:

```
export PATH=$ORACLE_HOME/bin:$JAVA_HOME/bin:$PATH
```

- 2 Edit the `/etc/csh.login` file, as follows:

- a Add the following lines to the file.

```
setenv ORACLE_BASE /u01/app/oracle
setenv ORACLE_HOME /u01/app/oracle/product/12.1.0
setenv ORACLE_SID <server_sid>
setenv NLS_LANG AMERICAN_AMERICA.AL32UTF8
setenv JAVA_HOME <jdk_home_location>
```

**Note:** For the values in the first two lines, use information about your Oracle client installation. For `<jdk_home_location>`, use the location where the JDK is installed.

- b Add the bin directories of your Oracle client and Java installations to the `PATH` variable. For example, add the following line as the last line where the `PATH` variable is set:

```
setenv PATH ${ORACLE_HOME}/bin:${JAVA_HOME}/bin:${PATH}
```

## Creating and configuring the WebLogic domain

The Empirica Signal application requires a WebLogic domain that includes Enterprise Manager and is configured for Web Service security. You can either create a new WebLogic domain or extend an existing WebLogic domain. This procedure describes how to create a new WebLogic domain.

Use the same user account that you used when you installed WebLogic.

- 1 In a command shell, type the following command:

```
$ cd  
/u01/app/oracle/product/Middleware/wlserver_10.3/common/bin
```

- 2 Type the following command:

```
$ ./config.sh &
```

The Welcome page appears.

- 3 Select **Create a new WebLogic domain**, and click **Next**.

The Select Domain Source page appears.

- 4 Select **Generate a domain configured automatically to support the following products**, and select the following products:

- Oracle Enterprise Manager - 11.1.1.0 [oracle\_common]
- Oracle WSM Policy Manager - 11.1.1.0 [oracle\_common]
- Oracle JRF - 11.1.1.0 [oracle\_common]

- 5 Click **Next**.

The Specify Domain Name and Location page appears.

- 6 Type a domain name, such as **empirica**, and click **Next**.

The Configure Administrator User Name and Password page appears.

- 7 Type a user name and password for WebLogic administration.

**Note: Remember these credentials. You use them to administer the WebLogic instance.**

- 8 Click **Next**.

The Configure Server Start Mode and JDK page appears.

- 9 In the WebLogic Domain Startup Mode section, select **Production Mode**.

- 10 In the JDK Selection section, select **Available JDKs**, and then select the 1.7.x\_xx JDK that is specified in the system requirements in the Empirica Signal *Release Notes*.

- 11 Click **Next**.

The Configure JDBC Component Schema page appears.

- 12 In the table at the bottom, select the OWSM MDS schema.

- 13 Fill in the following fields:

- From the Driver drop-down list, select the driver for either a service or instance connection.
- For DBMS/Service, type the appropriate value for the driver you selected:

- If the name of the driver contains the words for Instance connections, type the SID.
  - If the name of the driver contains the words for Service connections, type the service name.
  - For **Schema Owner**, type a value, such as **EMPIRICA\_MDS**.
  - For **Schema Password**, type the password that you created when you created the schema in Installing RCU and creating repositories.
- 14 Click **Next**.
- The Test JDBC Component Schema page appears.
- 15 Click **Next**.
- The Select Optional Configuration page appears.
- 16 Select the following options:
- Administration Server
  - Managed Servers, Clusters and Machines
  - Deployments and Servers
- 17 Click **Next**.
- The Configure the Administration Server page appears.
- 18 Select **SSL enabled**, and for **SSL listen port**, type **7002**.
- 19 Click **Next**.
- The Configure Managed Servers page appears.
- 20 Click **Add**.
- A row in the table becomes editable.
- 21 Select **SSL enabled**, and fill in the fields as follows:
- **Name**—Type **SignalServer**
  - **Listen address**—Type the fully qualified name of the application server.
  - **Listen port**—Type **7003**.
  - **SSL listen port**—Type **7004**.
- 22 Repeat the above steps starting at step 20 to create another Managed Server named **TopicsServer** and set the listen ports to **7005** and **7006**, respectively.
- 23 Click **Next**.
- The Configure Clusters page appears.
- 24 Click **Next**.
- The Configure Machines page appears.
- 25 Select the **Unix Machine** tab.
- 26 Click **Add**.
- A row in the table becomes editable.
- 27 Fill in the fields as follows:

- **Name**—Type **SignalMachine**.
  - **Node manager listen address**—Type the fully qualified name of the application server.
  - **Node manager listen port**—Type **5556**, if the value is not already present.
- 28 Click **Next**.
- The Assign Servers to Machines page appears.
- 29 In the right list of machines, select **SignalMachine**.
- 30 In the left list of servers, select **SignalServer**, and click the right arrow button. Repeat the process to move the TopicsServer to the right as well.
- 31 Click **Next**.
- The Target Deployments to Clusters or Servers page appears.
- 32 Assign deployments to the AdminServer:
- a In the list of target servers on the left, select **AdminServer**.
  - b Deselect the **FMW Welcome Page** entry, and make sure all other entries are selected.
- 33 Assign deployments to the SignalServer and TopicsServer:
- a In the list of target servers on the left, select **SignalServer**.
  - b Deselect the **FMW Welcome Page** entry.
  - c Select the following options, if they are not already selected, and make sure all other options are not selected:
    - wsil-wls
    - wsm-pm
  - d Repeat steps a through c for the **TopicsServer**.
- 34 Click **Next**.
- The Target Services to Clusters or Servers page appears.
- 35 In the list of target servers on the left, select **SignalServer**.
- 36 In the list of services on the right, select the following services, if they are not already selected:
- JRF Startup Class
  - JPS Startup Class
  - JDBC, as well as all of its child options.
- 37 Repeat steps 36 and 37 for the **TopicsServer**.
- 38 Click **Next**.
- The Configuration Summary page appears.
- 39 Click **Create**.
- The Creating Domain page appears.
- 40 When progress reaches 100 percent, click **Done**.
- The wizard closes.
- 41 Store your WebLogic administrator credentials so that you are not prompted for your credentials



when you start WebLogic:

- a In the command shell, navigate to the AdminServer directory under the empirica domain. For example, navigate to the following location:

```
/u01/app/oracle/Middleware/user_projects/domains/empirica/servers/AdminServer
/
```

- b If the security directory does not exist, create it.
- c Using a text editor, edit the boot.properties file in the security directory. This step creates the file, if it does not already exist.
- d Type the following lines in the file, providing the user name and password that you created when you created and configured the WebLogic domain.

```
username=<weblogic_admin_user>
password=<weblogic_admin_password>
```

- e Save the file, and close the text editor.

## Creating the nodemanager.properties file

Perform these steps as the non-privileged user on the application server.

- 1 Navigate to the \$WL\_HOME/server/bin directory, such as:

```
/u01/app/oracle/Middleware/wlserver_10.3/server/bin
```

- 2 Start the Node Manager by executing the following command:

```
$ ./startNodeManager.sh <listen_address> 5556
```

where <listen\_address> is the value you entered in Creating and configuring the WebLogic domain.

- 3 After the console says <secure socket listener started on port 5556>, press **Ctrl+C**.

The Node Manager stops.

- 4 Navigate to the \$WL\_HOME/common/nodemanager directory, such as:

```
/u01/app/oracle/Middleware/wlserver_10.3/common/nodemanager
```

- 5 Review the nodemanager.properties file:

- a Edit the nodemanager.properties file. For example:

```
$ vi nodemanager.properties
```

- b Set the values of the following properties to **true**:

- SecureListener

**Note:** For a non-SSL environment, set this property to false.

- StopScriptEnabled
- StartScriptEnabled

- 6 Save the file, and exit the vi editor.

## Starting WebLogic and the Node Manager

- 1 Navigate to the WebLogic default domain bin directory, using a command such as the following:

```
$ cd
/u01/app/oracle/Middleware/user_projects/domains/empirica/bin
```

- 2 Start WebLogic using the following command:

```
$ nohup ./startWebLogic.sh > /dev/null &
```

**Note:** Information messages might appear. You might need to press Enter to see the prompt.

- 3 Navigate to \$WL\_HOME/server/bin directory, such as:

```
/u01/app/oracle/Middleware/wlserver_10.3/server/bin
```

- 4 Execute following command

```
$ nohup ./startNodeManager.sh &
```

- 5 Verify that the Node Manager can be reached:

- a In an Internet browser, enter the URL for the WebLogic Administration Console, such as the following:

```
https://<servername>:7002/console
```

- b In the left pane, expand **Environment**, and select **Machines**.

The Summary of Machines page appears.

- c In the list of machines, select **SignalMachine**.

The Settings for SignalMachine page appears.

- d Select the **Monitoring** tab.

- e Confirm that the status is **Reachable**. If the status is Inactive, the Node Manager is not running.

- 6 Start Managed Servers using the Node Manager:

- a In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:

```
https://<servername>:7002/console
```

- b In the left pane, expand **Environment**, and select **Servers**.

- c Select the **Control** tab.

- d Select **SignalServer** and **TopicsServer**, and click **Start**.

- 7 Apply the JRF Template to the Managed Server:

- a In an internet browser, enter the URL for the Oracle Enterprise Manager, such as the following:

```
https://<servername>:7002/em
```

- b In the left pane, expand **Weblogic Domain**, expand **empirica**, and select the **SignalServer**.

- c Click **Apply JRF Template**, located at the top of the page.
- d In the left pane, select the **TopicsServer**.
- e Click **Apply JRF Template**, located at the top of the page.
- 8 Restart the SignalServer and TopicsServer managed servers:
  - a In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:  
`https://<servername>:7002/console`
  - b In the left pane, expand **Environment**, and select **Servers**.  
 The Summary of Servers page appears.
  - c Select the **Control** tab.
  - d From the list of servers, select **SignalServer** and **TopicsServer**.
  - e From the **Shutdown** drop-down list, select **Force Shutdown Now**.
  - f After the states of the SignalServer and TopicsServer change to Shutdown, select the checkboxes for **SignalServer** and **TopicsServer** in the table, and click **Start**.

## Creating a data source for credential access

To set up a data source in the WebLogic Administration Console for the credential store:

- 1 In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:  
`https://<servername>:7002/console`
- 2 In the left pane, expand **Services**, and select **Data Sources**.
- 3 In the upper-left corner of the page, in the Change Center section, click **Lock & Edit**.
- 4 In the right pane, click the **New** button, and from the drop-down list that appears, select **Generic Data Sources**.  
 The JDBC Data Source Properties page appears.
- 5 Type values for the following fields:
  - **Name**—For example, type **Empirica Credential Store**.
  - **JNDI Name**—For example, type **jdbc/mds/opss**.
- 6 Click **Next**.  
 The JDBC Data Source Properties page appears.
- 7 Click **Next**.  
 The Transaction Options page appears.
- 8 Click **Next**.  
 The Connection Properties page appears.
- 9 Fill in the following names:
  - **Database Name**—Type the SID.

- **Host Name**
  - **Port**
  - **Database User Name**—For example, EMPIRICA\_OPSS.
  - **Password, Confirm Password**—Type the password that you entered when you installed RCU.
- 10 Click **Next**.

The Test Database Connection page appears.
  - 11 At the top of the page, click **Test Configuration**.

A Connection Test Succeeded message appears.
  - 12 Click **Next**.

The Select Targets page appears.
  - 13 From the Servers list, select **AdminServer, SignalServer, and TopicsServer**.
  - 14 Click **Finish**.
  - 15 In the upper-left corner of the page, in the Change Center section, click **Activate Changes**.

A message appears, indicating that the changes have been activated. The Credential Store Data Source entry is created.

## Associating the credential store with the data source

- 1 In an internet browser, enter the URL for the Oracle Enterprise Manager, such as the following:  
`https://<servername>:7002/em`
- 2 In the left pane, expand **WebLogic Domain**, and select **empirica**.
- 3 In the right pane, expand the **WebLogic Domain** drop-down menu at the top of the page, and select **Security > Security Provider Configuration**.

The Security Provider Configuration page appears.
- 4 In the Security Stores area, click **Change Store Type**.

The Configure Security Stores page appears.
- 5 From the Store Type drop-down list, select **Oracle Database**.
- 6 Next to the Data Source JNDI Name field, click **Select**, select the **Empirica Credential Store**, and click **OK**.
- 7 In the Data Source Properties area, type the:
  - **User name**—Name of the database user name, such as EMPIRICA\_OPSS.
  - **Password, Confirm Password**—Password for the schema that you created in *Installing RCU and creating repositories* (on page 117).
- 8 In the Root DN field, type **cn=root**.
- 9 Select **Create new domain**.
- 10 In the Domain Name field, type **empirica**.
- 11 Click **OK**.

A message appears, indicating that the domain must be restarted.

- 12 Click **Yes**.

The domain restarts. A confirmation dialog box appears and displays the results.

- 13 Click **Close**.

The credential store is set up.

- 14 Stop and restart the WebLogic server.

## Restarting the SignalServer and TopicsServer managed servers

- 1 In an internet browser, enter the URL for the WebLogic Administration Console, such as the following:

```
https://<servername>:7002/console
```

- 2 In the left pane, expand **Environment**, and select **Servers**.

The Summary of Servers page appears.

- 3 Select the **Control** tab.

- 4 From the list of servers, select **SignalServer** and **TopicsServer**.

- 5 From the Shutdown drop-down list, select **Force Shutdown Now**.

- 6 After the states of the SignalServer and TopicsServer change to Shutdown, select the checkboxes for **SignalServer** and **TopicsServer** in the table, and click **Start**.

## Configuring SSL

The WebLogic server is configured by default to use a demo SSL certificate. This certificate is intended for demonstration purposes only. Do not use the demo SSL certificate for production environments.

Perform the following steps to configure WebLogic to use SSL for production use of the Empirica Signal application. For more information, see the following document:

[http://docs.oracle.com/cd/E23943\\_01/web.1111/e13707/ssl.htm](http://docs.oracle.com/cd/E23943_01/web.1111/e13707/ssl.htm)

- 1 Obtain an SSL certificate from a Certification Authority.
- 2 Using the WebLogic Administration Console, configure AdminServer, SignalServer and TopicsServer to use your SSL certificate.

For more information, see the following document:

[http://docs.oracle.com/cd/E23943\\_01/apirefs.1111/e13952/taskhelp/security/ConfigureKeystoresAndSSL.html](http://docs.oracle.com/cd/E23943_01/apirefs.1111/e13952/taskhelp/security/ConfigureKeystoresAndSSL.html).

- 3 Configure the Node Manager to use your SSL certificate.

For more information, see the following document:

[http://docs.oracle.com/cd/E23943\\_01/doc.1111/e15483/node\\_manager.htm#CCHEBIHI](http://docs.oracle.com/cd/E23943_01/doc.1111/e15483/node_manager.htm#CCHEBIHI).

# About the documentation

## Where to find the product documentation

The product documentation is available from the following locations:

- **My Oracle Support** (<https://support.oracle.com>)—*Release Notes* and *Known Issues*.
- **Oracle Help Center** (<http://docs.oracle.com/en/industries/health-sciences/empirica-signal-topics/index.html>)—The most current documentation set, excluding the *Release Notes* and *Known Issues*.

If the software is available for download, the complete documentation set is available from the Oracle Software Delivery Cloud (<https://edelivery.oracle.com>).

All documents may not be updated for every Empirica Signal release. Therefore, the version numbers for the documents in a release may differ.

## Documentation accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

## Access to Oracle Support

Oracle customers that have purchased support have access to electronic support.

For phone support visit: <http://www.oracle.com/us/support/contact/health-sciences-cloud-support/index.html>.

To send an email use one of the following addresses:

For Japanese support: [saasclinicalsupportjp\\_ww@oracle.com](mailto:saasclinicalsupportjp_ww@oracle.com)

For all other countries: [saasclinicalsupport\\_ww@oracle.com](mailto:saasclinicalsupport_ww@oracle.com)

## Documentation

Item	Description	Part number	Last updated
<i>Release Notes</i>	The <i>Release Notes</i> document provides descriptions of new features, enhancements, and bug fixes as well as system requirements.	E-84224-01	8.1.0.2
<i>Known Issues</i>	The <i>Known Issues</i> document provides detailed information about the known issues in the release, along with workarounds, if available.	E70268-02	8.1
<i>User Guide and Online Help</i>	The <i>User Guide and Online Help</i> provides step-by-step instructions on how to use the Empirica Signal and Empirica Topics applications to perform statistical analyses of safety data.	E70269-01	8.1
<i>Installation and Upgrade Instructions</i>	The <i>Installation and Upgrade Instructions</i> document provides instructions on how to install and configure the environment for the Empirica Signal software.	E-84237-01	8.1.0.2
<i>Secure Configuration Guide</i>	The <i>Secure Configuration Guide</i> provides guidance and recommendations on securely installing, configuring, and managing the Empirica Signal software and its system components.	E60408-01	8.1
<i>Topics API Guide</i>	The <i>Topics API Guide</i> describes how to integrate a proprietary application with Empirica Topics.	E77813-01	8.1
<i>Topics Reporting and Oracle Business Intelligence Configuration Guide</i>	The <i>Topics Reporting and Oracle Business Intelligence Configuration Guide</i> provides system requirements and configuration instructions for integrating OBIEE with the Empirica Signal application.	E60409-01	8.1
<i>Argus Mart Data and Argus Signal Management Installation Instructions</i>	The <i>Argus Mart Data and Argus Signal Management Installation Instructions</i> describe how to import proprietary data maintained in Argus Mart to Empirica Signal and how to install and configure Argus signal management.	E87283-01	8.1.0.2
<i>Argus Mart Data and Argus Signal Management Release Notes</i>	The <i>Argus Mart Data and Argus Signal Management Release Notes</i> describe new features, enhancements, and bug fixes to the Argus Mart data configurations for Empirica Signal. They also document the Argus Mart data tables available to Empirica Signal and the default signal management configuration.	E76553-01	8.1



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Item	Description	Part number	Last updated
<i>Third Party Licenses and Notices</i>	The <i>Third Party Licenses and Notices</i> document includes licenses and notices for third party technology that may be included or distributed with the Empirica Signal software.	E78170-01	8.1

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