

Oracle Health Sciences Empirica Signal

Installation and Upgrade Instructions



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Preface

This preface contains the following sections:

- [Documentation accessibility](#)
- [Related resources](#)
- [Access to Oracle Support](#)
- [Additional copyright information](#)

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>.

Related resources

All documentation and other supporting materials are available on the [Oracle Help Center](#).

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through Support Cloud.

Contact our Oracle Customer Support Services team by logging requests in one of the following locations:

- English interface of Oracle Health Sciences Customer Support Portal (<https://hsgbu.custhelp.com/>)
- Japanese interface of Oracle Health Sciences Customer Support Portal (<https://hsgbu-jp.custhelp.com/>)

You can also call our 24x7 help desk. For information, visit <http://www.oracle.com/us/support/contact/health-sciences-cloud-support/index.html> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

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1

Product overview

- [Assumptions](#)
This guide assumes familiarity with a number of activities.
- [Physical configuration options](#)
The Oracle Empirica Signal software is typically installed in a two-tier configuration, using separate database server and application server machines.
- [Components of the installation package](#)
The installation package contains a number of components.

Assumptions

This guide assumes familiarity with a number of activities.

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

Physical configuration options

The Oracle 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 a number of components.

File	Description
Signal_Install-9_1_0_0_XXX.tar.gz	Components for installing the Oracle Empirica Signal software.
Signal-9_1_0_0_XXX.zip	Build that you install, where XXX is the build number.
Signal-9_1_0_0_XXX-Database.zip	Scripts for setting up the Oracle Empirica Signal database account.
TopicsService-9_1_0_0_XXX.zip	Components for installing the Empirica Topics software.
RGPS_9_1_0_0_XXX.tar.gz	RGPS add-on package for R.

File	Description
Data_Stub.zip	Components for installing the small data account needed for Oracle Empirica Signal standard reports.
Signal-9_1_0_0_XXX-OBIEE.zip	Components for configuring Oracle Business Intelligence for Topics reporting.
Update_AM_8_0_for_Signal_9_1_0_0_XXX.zip	Scripts for upgrading Oracle Argus Mart 8.0 for use by Oracle Empirica Signal 9.1.
Argus_Prep_3_0_0_1_XXX.zip	Scripts for installing Argus Signal Management.
AERS_Prep_3_0_0_1_XXX.zip	Scripts for installing Interactive AERS 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.

2

Plan your installation

- [How to use this document](#)
This document contains the procedures that guide you through both the installation and upgrade processes.
- [Prerequisites to upgrade \(upgrade only\)](#)
You should be running release 8.0 or later before upgrading to release 9.1.0.
- [Migrate 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 19c, 18c, or 12c, back up your database first.
- [Prepare the environment on the application server for installation or upgrade \(skip for 9.0.x upgrade\)](#)
Before you install or upgrade the Oracle Empirica Signal software, prepare the application server.
- [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.

How to use this document

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

You can upgrade from release 8.x or 9.0.x to release 9.1.0 of the Oracle Empirica Signal software.

Sections in the chapters that follow 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.

Prerequisites to upgrade (upgrade only)

You should be running release 8.0 or later before upgrading to release 9.1.0.

Migrate 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 19c, 18c, or 12c, back up your database first.

Work with a database administrator to migrate the contents of your database to the new Oracle Database.

Prepare the environment on the application server for installation or upgrade (skip for 9.0.x upgrade)

Before you install or upgrade the Oracle Empirica Signal software, prepare the application server.

Perform the procedures described in [Getting the application server ready for the Oracle Empirica Signal application with WebLogic 12c](#).

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](#)
You must collect information about the database server.
- [Application server](#)
You must collect information about the application server.

Database server

You must collect information about the database server.

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

Note:

In Oracle Database 19c, 18c, or 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/empcdb/signalpdb/'`

For installations, be prepared to provide a password for the Oracle Empirica Signal database account that will be created in these steps. If you are installing Oracle Empirica 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 account name and passwords for the existing Oracle Empirica Signal database account and tablespace name used by the account. If you have Oracle Empirica Topics installed, also be prepared to provide the account name and password for the existing `topic_workflow` database account.

Application server

You must collect information about the application server.

- JDK installation location, such as:
`/usr/java/jdk1.8.x_xx`
- The following information about the Oracle client:
 - Oracle base location, such as:
`/u01/app/oracle`
 - Oracle home location, such as:
`/u01/app/oracle/product/19.3.0`
- The following information about Oracle WebLogic Server:
 - Installation location, such as:
`/u01/app/oracle/product/Middleware12c/`
 - URL for the Oracle 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 an Oracle WebLogic Server administrator.
- For single sign-on (SSO) installations, the following information:
 - Native login port number to use for initially changing the Oracle Empirica Signal admin password.
 - Port number used for normal SSO Oracle 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.

3

Prepare the application server

- [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.
- [Required privileges for the application server](#)
You must have access to the following accounts on the application server:
- [Set the default file creation umask](#)
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.
- [Unpack the installation files into the installation directory](#)
The installation directory stores Oracle Empirica Signal components during the installation process.
- [Add 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.
- [Set up the application database account \(installation only\)](#)
Perform these steps using the non-privileged user account on the application server.
- [Set up the Topic Workflow database account \(optional, installation only\)](#)
You create a Topic Workflow tablespace and user account to enable the Oracle Empirica Topics feature.
- [Set up the test data database account \(installation only\)](#)
This procedure is optional.
- [Apply upgrade scripts to Oracle Empirica Signal 8.x or 9.0.x schemas \(upgrade only\)](#)
Perform these steps using the non-privileged user account on the application server.
- [Upgrade Signal Management configuration schemas \(upgrade from 8.1.x only\)](#)
Upgrade these configuration schemas.
- [Install MGPS \(new installations and upgrade from 8.0 and 8.1.x\)](#)
Install the MGPS program that supports Multi-item Gamma Poisson Shrinker (MGPS) data mining. For more information, see the *User Guide and Online Help*.
- [Install the RGPS add-on package to the R library \(new installations and upgrade from 8.0.x, 8.1, or 8.1.0.1\)](#)
If you have R version 3.3 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*.
- [Install and configure the X Windows Virtual Frame Buffer \(Xvfb\) \(new installation\)](#)
You install X Windows Virtual Frame Buffer (Xvfb) to enable graphs in Oracle Empirica Signal.

- [Modify the default Oracle WebLogic Server configuration files \(skip for 9.0.x upgrade\)](#)
Perform these steps using the non-privileged user account on the application server.
- [Configure the Oracle Empirica Signal and Oracle Empirica Topics Oracle WebLogic Server instances \(skip for 9.0.x upgrade\)](#)
You must configure the Oracle WebLogic Server instances.
- [Start the Oracle WebLogic Server and the Node Manager \(skip for 9.0.x upgrade\)](#)
Perform these steps using the non-privileged user account on the application server.

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 Oracle 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.

Set the default file creation umask

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.

Note:

If you are upgrading from Oracle Empirica Signal 8.x or 9.0 using the same application server, skip this section.

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

1. Navigate to your home directory, for example:

- ```
$ cd ~
```
- Using a text editor, open the `.login` file. If the file does not exist, you will create it.
  - Add the following text to the file:  
**umask 027**
  - Save and close the file.

## Unpack the installation files into the installation directory

The installation directory stores Oracle 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 Oracle Empirica Signal 8.x or 9.0.x 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`.

- Unpack the `Signal_Install-9_1_0_0_XXX.tar.gz` file into a directory that is accessible to the Oracle WebLogic Server software, for example:

```
$ cd /u01/stage
$ tar xvf /u01/stage/Signal_Install-9_1_0_0_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.

- Unpack the contents of the `Signal-9_1_0_0_XXX.zip` file into the directory, for example:

```
$ unzip Signal-9_1_0_0_XXX.zip -d /u01/stage/Signal_Install/Signal
```

- If you use Oracle Empirica Topics, unpack the `TopicsService-9_1_0_0_XXX.zip` file into the `TopicsService` subdirectory in the installation directory, for example:

```
$ unzip TopicsService-9_1_0_0_XXX.zip -d
/u01/stage/Signal_Install/TopicsService
```

 **Note:**

If you have previously installed Oracle Empirica Signal 8.x or 9.0.x on the same application server, before executing the steps below, rename the old Database directory. For example, change its name to Database\_old.

4. Unpack the Signal-9\_1\_0\_0\_XXX-Database.zip file:

- a. Create a Database directory:

```
$ mkdir /u01/stage/Database
```

- b. Unpack the contents of the Signal-9\_1\_0\_0\_XXX-Database.zip file into the directory, for example:

```
$ unzip Signal-9_1_0_0_XXX-Database.zip -d /u01/stage/
Database
```

## Add 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.

## Set 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_tablespaces_linux.sql
```

- b. Locate the `datafile_path` variable.
- c. To create Oracle 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/empcdb/signalpdb'
```

 **Note:**

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

- d. If Transparent Data Encryption is desired, uncomment the line (remove '--' from the beginning)

```
DEFINE encryption = ENCRYPTION DEFAULT STORAGE(ENCRYPT)
```

- e. Save and close the file.

3. Create the Oracle Empirica Signal tablespace:

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

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

A password prompt appears.

- b. Enter the Oracle **system** account password.

4. Create the Oracle 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. Enter the Oracle **sys** account password.

A second password prompt appears.

- c. Enter a password for the Oracle Empirica Signal database account.

- d. Reenter the password.

 **Note:**

You use the password in a later step.

5. Populate the application schema:

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

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

A password prompt appears.

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

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

You create a Topic Workflow tablespace and user account to enable the Oracle Empirica Topics feature.

Do not perform this procedure if you do not use Oracle 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. 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.
```

- b. Enter the Oracle **system** account password.  
A second password prompt appears.
- c. Enter a password for the `topic_workflow` database account.
- d. Reenter 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. Enter 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 enter a password.
```

- b. Enter the `topic_workflow` account password that you specified in Step 2.

## Set 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
```

If the `TEST_IQOQ` database account exists, drop the account:

- a. Execute the **drop user** command as the **system** user, for example:

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

A password prompt appears.

- b. Enter the Oracle **system** account password.

```
SQL> drop user TEST_IQOQ cascade;
```

- c. Exit `SQL*PLUS`.

2. 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. Enter the Oracle **system** account password.

A second password prompt appears.

- c. Enter a password for the **TEST\_IQOQ** database account.

- d. Reenter the password.

### Note:

You use the password in a later step.

3. 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. Enter the **TEST\_IQOQ** database account password.

## Apply upgrade scripts to Oracle Empirica Signal 8.x or 9.0.x schemas (upgrade only)

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

1. Navigate to the `Database/Signal8.1.1.1` directory, for example:

```
$ cd /u01/stage/Database/Signal8.1.1.1
```

2. If you are upgrading from version 8.0:
    - a. As the Oracle 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 Oracle Empirica Signal 8.0:  

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


A password prompt appears.
    - b. Enter the Oracle Empirica Signal database account password.
  3. If you are upgrading from version 8.0.x or 8.1.0.x:
    - a. As the Oracle Empirica Signal database user, execute the `update_8_1_to_8_1_1.sql` script to update the schema from 8.1 to 8.1.1, for example:  

```
$ sqlplus webvdme@<TNS_NAME> @update_8_1_to_8_1_1.sql
```

A password prompt appears.
    - b. Enter the Oracle Empirica Signal database account password.
  4. If you're upgrading from 8.0.x, 8.1.0.x, 8.1.1, or 8.1.1.1:
    - a. Navigate to the database, for example:  

```
$ cd /u01/stage/Database/Signal9.0.0.0
```
    - b. As the **SYS** database user, execute the `update_8_1_1_to_9_0.sql` script to update the schema from 8.1.x to 9.0, for example:  

```
$ sqlplus SYS@<TNS_NAME> as sysdba @update_8_1_1_to_9_0.sql
```

A password prompt appears.
    - c. Enter the **SYS** database account password.
    - d. When the second password prompt appears, enter the Oracle Empirica Signal database account password.
-  **Note:**

If you upgrade from Oracle 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. You can ignore this message.
5. Perform the following steps to upgrade database schemas to 9.1.0.
    - a. Navigate to the Database folder, for example:  

```
$ cd /u01/stage/Database
```
    - b. Using a text editor, open the `update_9_0_to_9_1.sql` file.
    - c. Update `WEBVDME_ACCOUNT` and `tablespace_name` to actual value.
    - d. As the **SYS** database user, execute the `update_9_0_to_9_1.sql` script to update the schema from 9.0.x to 9.1, for example:  

```
$ sqlplus SYS@<TNS_NAME> as sysdba @update_9_0_to_9_1.sql
```

A password prompt appears.

- e. Enter the **SYS** database account password.
  - f. Once the execution completed, verify `update_9_0_to_9_1.log`.
6. If you use the Oracle Empirica Topics feature, to upgrade the Oracle Empirica Topics schema:
- a. Using a text editor, open the `update_twc_9_0_to_9_1.sql` file.
  - b. Update `WEBVDME_ACCOUNT` and `TOPIC_WORKFLOW_USER`.
  - c. As the **SYS** database user, execute the `update_twc_9_0_to_9_1.sql` script to update TWC schema from 9.0.x to 9.1, for example:
 

```
$ sqlplus SYS@<TNS_NAME> as sysdba @update_twc_9_0_to_9_1.sql
```

 A password prompt appears.
  - d. Enter the **SYS** database account password.
  - e. Once the execution completed, verify `update_twc_9_0_to_9_1.log`.
  - f. If multiple `TOPIC_WORKFLOW` accounts are configured, repeat from Step b, by updating `TOPIC_WORKFLOW_USER` for each account.

## Upgrade Signal Management configuration schemas (upgrade from 8.1.x only)

Upgrade these configuration schemas.

- [AERS Interactive Signal Management Configuration](#)  
If upgrading from 8.1.x, upgrade the AERS Interactive Signal Management Configuration.
- [ARGUS Interactive Signal Management Configuration](#)  
If upgrading from 8.1.x, upgrade the ARGUS Interactive Signal Management Configuration.
- [Scripted Signal Management Configuration](#)  
If upgrading from 8.1.x, upgrade the Scripted Signal Management Configuration.

### AERS Interactive Signal Management Configuration

If upgrading from 8.1.x, upgrade the AERS Interactive Signal Management Configuration.

Refer to Chapter 3, Upgrading AERS signal configuration from 8.1.1.1 and 9.0 to 9.1, in *AERS Signal Management for Use with Oracle Empirica Signal Installation and Upgrade Instructions* for upgrade step details.

### ARGUS Interactive Signal Management Configuration

If upgrading from 8.1.x, upgrade the ARGUS Interactive Signal Management Configuration.

Refer to Chapter 3, Install and configure an Oracle Argus Mart signal configuration, in *Oracle Argus Mart Data and Signal Management for Use with Oracle Empirica Signal Installation Instructions* for upgrade step details.

## Scripted Signal Management Configuration

If upgrading from 8.1.x, upgrade the Scripted Signal Management Configuration.

1. Navigate to the Database directory, for example:  

```
$ cd /u01/stage/Database
```
2. Start sqlplus as the Oracle Empirica Signal database user, for example:  

```
$ sqlplus webvdme@<TNS_NAME>
```
3. When prompted, enter the password.
4. Start logging, for example:  

```
SQL> spool <log file name>
```
5. Execute the `create_product_field_tables.sql` script, for example:  

```
SQL> @create_product_field_tables.sql <SMC_Id>
```
6. Execute the `create_configurable_alerts_tables.sql` script, for example: 

```
SQL> @create_configurable_alerts_tables.sql <SMC_Id>
```
7. Execute the `populate_signalcodelist_table.sql` script, for example: 

```
SQL> @populate_signalcodelist_table.sql <SMC_Id>
```
8. Execute the `update_signaldrugoverview_view.sql` script, for example:  

```
SQL> @update_signaldrugoverview_view.sql <SMC_Id>
```
9. Exit sqlplus, for example:  

```
SQL> quit
```
10. Copy `06_create_drugoverview_view.sql` file from `Database/update_ssm` folder into the `sigmgt/db` subfolder of the Scripted Signal Management software directory. For instance, if Scripted Signal Management software installed in `/u01/stage/projects/vaers_prep` directory, run the following command:  

```
$ cp -f update_ssm/06_create_drugoverview_view.sql../
projects/vaers_prep/sigmgt/db
```

## Install MGPS (new installations and upgrade from 8.0 and 8.1.x)

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 Oracle 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, if it doesn't already exist. 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 -f 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 [Set up the listener.properties file](#).

## Install the RGPS add-on package to the R library (new installations and upgrade from 8.0.x, 8.1, or 8.1.0.1)

If you have R version 3.3 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*.

If you have R version 3.3 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 Oracle 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 that contains `RGPS_9_1_0_0_XXX.tar.gz`.
2. Execute the following command:

```
$ sudo R CMD INSTALL RGPS_9_1_0_0_XXX.tar.gz
```

## Install and configure the X Windows Virtual Frame Buffer (Xvfb) (new installation)

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

Prerequisites:

- Yum is installed and configured to use the appropriate configuration file.

- Your system can connect to the yum repositories.



#### Note:

If Xvfb version 17.4-17.0.1.el6\_9.1.x86\_64 is installed or retrieved by yum, then either downgrade to 1.17.4-16.0.1.el6\_9.1.x86\_64, or obtain Xvfb version 1.17.4-17.0.2.el6 or later.

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. Enter the following command to initiate the installation:
 

```
$ sudo yum install Xvfb
```

A password prompt might appear.
  - b. If a password prompt appears, enter the password for the privileged user account on the application server.
 

A confirmation prompt appears.
  - c. Enter **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 Oracle Empirica Signal installation directory. For more information, see [Unpack the installation files into the installation directory](#).

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 xvfb (via systemctl) in Linux 7
Starting X Virtual Frame Buffer in Linux 6
```



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

## Modify the default Oracle WebLogic Server configuration files (skip for 9.0.x upgrade)

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/product/Middleware12c/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 in `setStartupEnv.sh`:
  - 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}${ORACLE_HOME}/
 jdbc/lib/ojdbc8.jar"
 export PRE_CLASSPATH
else
 #PRE_CLASSPATH="${COMMON_COMPONENTS_HOME}/modules/features/
 com.oracle.db.jdbc7-dms.jar"
 PRE_CLASSPATH="${ORACLE_HOME}/jdbc/lib/ojdbc8.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=/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=/u01/app/oracle/product/Middleware12c/em -
-DINSTANCE_HOME=/u01/app/oracle/product/Middleware12c/
user_projects/domains/empirica -

Doracle.sysman.util.logging.mode=dual_mode"
```

- f. Save and close the file.

## Configure the Oracle Empirica Signal and Oracle Empirica Topics Oracle WebLogic Server instances (skip for 9.0.x upgrade)

You must configure the Oracle WebLogic Server instances.

1. In a Web 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 Oracle 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, enter 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 Oracle 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 Oracle Empirica Topics, to configure the Oracle 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, enter the following text on a single line without a carriage return:

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

 **Note:**

`-XmxNNNNm` and `-XX:MaxPermSize` are memory parameters that control the amount of memory used by the Oracle Empirica 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.

## Start the Oracle WebLogic Server and the Node Manager (skip for 9.0.x upgrade)

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

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

```
$ cd u01/app/oracle/product/Middleware12c/user_projects/domains/
empirica/bin
```

2. If Oracle WebLogic Server is running, stop it, for example:

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

3. Start Oracle WebLogic Server, for example:

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

 **Note:**

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

4. Stop the Node Manager:

```
$./stopNodeManager.sh
```

5. Restart the Node Manager:

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

6. Verify that the Node Manager is reachable:

- a. In a Web browser, navigate to the Oracle 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.

7. In the Domain Structure pane, select **Servers**.

8. Select the **Control** tab.

9. Start or restart the Oracle Empirica Signal server using the Node Manager:

- a. In the table, review the **State** property for the Oracle Empirica Signal server.
- b. If the state of the server is RUNNING, shut down the server:
  - i. Select the **SignalServer** checkbox.
  - ii. Expand the **Shutdown** drop-down menu, and then select **Force Shutdown Now**.
  - iii. 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.

10. If you use Oracle Empirica Topics, start or restart the Oracle Empirica Topics server using the Node Manager:
  - a. In the table, review the **State** property for the Oracle Empirica Topics server.
  - b. If the state of the server is RUNNING, shut down the server:
    - i. Select the **TopicsServer** checkbox.
    - ii. Expand the **Shutdown** drop-down menu, and then select **Force Shutdown Now**.
    - iii. 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 **TopicsServer** 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.

# 4

## Configure database credentials (skip for 9.0.x upgrade)

- [Create the Oracle Empirica Topics user on the Oracle WebLogic Server](#)  
To configure the database credentials, you must create the Oracle Empirica Topics user on the Oracle WebLogic Server.
- [Store the Oracle Empirica Signal database and Oracle Empirica Topics credentials in Oracle Enterprise Manager](#)  
You create a map to store credentials associated with the Oracle Empirica Signal application.
- [Set up permissions for the credential store](#)  
You create security grants in the Oracle WebLogic Server console to enable the Oracle Empirica Signal application to access the credential store. Otherwise, the application cannot start, and users cannot log in.

## Create the Oracle Empirica Topics user on the Oracle WebLogic Server

To configure the database credentials, you must create the Oracle Empirica Topics user on the Oracle WebLogic Server.

1. In a Web 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 Oracle 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.

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

You create a map to store credentials associated with the Oracle Empirica Signal application.

You create keys in the map for:

- Oracle Empirica Signal database account credentials.
  - The URL to connect to the Oracle Empirica Signal database account.
  - Oracle Empirica Topics credentials, if you use the Topics service.
  - LDAP credentials, if you use LDAP for authentication.
1. In a Web browser, navigate to Oracle Enterprise Manager console, for example:  
`https://< server_name >:7002/em`
  2. Log in using the Oracle WebLogic Server administrator credentials provided to you by the system administrator.  
 The Oracle Enterprise Manager console appears.
  3. Below the page title, expand the **WebLogic Domain** menu, select **Security**, and then select **Credentials**.  
 The Credentials page appears.
  4. If you are upgrading from Oracle Empirica Signal 8.0, click the `oracle.hsgbu.empirica` map, then click **Delete...**, and answer **Yes** to complete the deletion.
  5. Create a map for the Oracle Empirica Signal application credentials:
    - a. In the Credentials table, click **Create Map**.  
 The Create Map dialog box appears.
    - b. In the **Map Name** field, enter `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 [Set up the webvdme.properties file for Oracle Empirica Signal](#).
    - d. Click **OK**.
  6. Create a key for the Oracle 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**—Enter **DatabaseCredentials**.
  - **Type**—Select **Password**.
  - **User Name, Password, Confirm Password**—Enter the credentials for the Oracle Empirica Signal database schema. The default user name is `webvdme`.
  - **Description**—Enter **Signal schema user name and password**.
- c. Click **OK**.
7. Create a key for the URL to connect to the Oracle 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**—Enter **DatabaseConnectURL**.
  - **Type**—Select **Generic**.
  - **Credential**—Select **Enter as text**, and enter the database connection URL for the Oracle 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**—Enter **Signal database connection URL**.
- c. Click **OK**.
8. If you use Oracle Empirica Topics, create a key for the Oracle Empirica 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**—Enter **TopicsService**.
  - **Type**—Select **Password**.
  - **User Name, Password, Confirm Password**—Enter the credentials for the Oracle Empirica Topics user you created on the Oracle WebLogic Server.  
For more information, see [Create the Oracle Empirica Topics user on the Oracle WebLogic Server](#).
  - **Description**—Enter the user name and password for Oracle Empirica Signal to communicate with the Oracle Empirica Topics service.
- c. Click **OK**.
9. 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**—Enter **LdapCredentials**.
  - **Type**—Select **Password**.
  - **User Name, Password, Confirm Password**—Enter the login information for the LDAP user.
  - **Description**—Enter **LDAP user name and password**.
- c. Click **OK**.
10. In the Credentials table, expand the map you created and review the keys.

## Set up permissions for the credential store

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

1. In a Web browser, navigate to Oracle Enterprise Manager console, for example:  
`https://< server_name >:7002/em`
2. Log in using the Oracle WebLogic Server administrator credentials provided to you by the system administrator.

The Oracle Enterprise Manager console appears.

3. Below the page title, expand the **WebLogic Domain** menu, select **Security**, and then select **System Policies**.

The System Policies page appears.

4. Create a security grant for the Oracle Empirica Signal codebase.

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

The Create System Grant page appears.

- b. In the **Codebase** field, enter 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 Oracle Empirica Signal. For more information, see [Create the Oracle Empirica Signal deployment on the Oracle WebLogic Server](#).

5. Add a permission to the security grant for Oracle 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.CredentialAccessP  
ermission
- **Resource Name** —  
context=SYSTEM, mapName=<MAP\_NAME>, keyName=\*  
where <MAP\_NAME> is the map you created for the Oracle Empirica Signal  
application credentials, for example, oracle.hsgbu.empiricasignal.  
  
For more information, see [Store the Oracle Empirica Signal database and Oracle 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.

6. Search for the security grant you just created:

- a. From the **Name** drop-down list, select **Includes**.

- b. In the search field, enter **Signal** or the application context root.

For more information, see [Create the Oracle Empirica Signal deployment on the Oracle WebLogic Server](#).

- c. Click **Search**.

The security grant appears in the table.

7. Create a security grant for the Oracle 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, enter 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 Oracle Empirica Signal. For more information, see [Create the Oracle Empirica Signal deployment on the Oracle WebLogic Server](#).

- c. Click **OK**.

The security grant is created.

8. Follow the previous two steps to create security grants for the following codebases.

- Oracle Empirica Topics service codebase:

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

- Oracle Empirica Topics WebLogic domain codebase:

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

# 5

## Set up the Oracle Empirica Signal software

- [Set up the Oracle Empirica Signal properties files \(skip for 9.0.x upgrade\)](#)  
Set up these Oracle Empirica Signal properties files.
- [Upgrade from Oracle Empirica Signal release 9.0.x to 9.1](#)  
Perform these tasks to upgrade from Oracle Empirica Signal 9.0.x to 9.1.

### Set up the Oracle Empirica Signal properties files (skip for 9.0.x upgrade)

Set up these Oracle Empirica Signal properties files.

- [Set up the webvdme.properties file for Oracle Empirica Signal](#)  
You create and edit the `webvdme.properties` file to supply important properties to the Oracle Empirica Signal software.
- [Set up the webvdme.properties file for Oracle Empirica Topics](#)  
To use Oracle Empirica Topics, set up the `webvdme.properties` file.
- [Set up the listener.properties file](#)  
You create and edit the `listener.properties` file to store information used for data mining runs.
- [Set up the report\\_listener.properties file](#)  
You create and edit the `report_listener.properties` file to enable Oracle Empirica Signal to run reports in batches.
- [Set up the webvdme-fonts.properties file](#)  
You create and edit the `webvdme-fonts.properties` file to store font information for Oracle Empirica Signal.
- [Set up the log4j2.xml file for Oracle Empirica Signal](#)  
You edit the `log4j2.xml` file to specify where to store Oracle Empirica Signal log files.
- [Set up the log4j2.xml file for Oracle Empirica Topics](#)  
You edit the `log4j2.xml` file to specify where to store the Oracle Empirica Topics log files.
- [Set up the ldap.properties file](#)  
To integrate Oracle Empirica Signal with LDAP, you store information about the LDAP configuration in the `ldap.properties` file.

### Set up the webvdme.properties file for Oracle Empirica Signal

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

Before you begin, if you intend to configure the Oracle Empirica Signal software to use single sign-on (SSO) with Oracle Access Manager, refer to [Set up Oracle Access Manager](#) for configuration details.

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

1. If you are installing the Oracle Empirica Signal software on this server for the first time, create a directory for temporary files created by the Oracle 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. If this is a new installation, 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. If you are upgrading from Oracle Empirica Signal 8.x, copy your previous `webvdme.properties` to the <INSTALL\_DIR>/Signal/WEB-INF/classes directory, for example:

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

- a. Using a text editor, open the `webvdme.properties` file.
- b. Edit the parameters according to the following table:

| Parameter                   | Description                                                                                                                                                                                                                                                                             | Example                                                             |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <code>sqlldr_connect</code> | Specify the value <TNS_NAME>.                                                                                                                                                                                                                                                           | <code>sqlldr_connect=oracle</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>  | If you plan to use one application server to host multiple instances of Oracle Empirica Signal, provide the name of the instance.<br>If you do not plan to use one application server to host multiple instances of Oracle Empirica Signal, leave the <code>instance.name</code> blank. | <code>instance.name=dev</code><br>or<br><code>instance.name=</code> |

| Parameter                                | Description                                                                                                                                                                                                                                                                                                           | Example                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #topicsService.url                       | <p>If you plan to use the Oracle Empirica Topics feature, uncomment the line, and replace localhost with your server name and replace portNumber with the port number.</p> <p>If you do not plan to use the Oracle Empirica Topics feature, uncomment the line, and set the topicsService.url parameter to empty.</p> | <pre>topicsService.url= https:// myserver:7006/ TopicsService/ws/ topicsService</pre> <p>The example is for an SSL environment, where you configure the SSL security policy for the Oracle Empirica Topics web service. For more information, see <a href="#">Set up the Oracle Empirica Topics web service security policy</a>. For a non-SSL environment, use http and the appropriate port.</p> |
| topicsService.maxAttachmentSizeMB        | Specify the maximum allowed size for Oracle Empirica Topics attachments in MB. The recommended value is 100 MB.                                                                                                                                                                                                       | <pre>topicsService.maxAttachmentSizeMB=100</pre>                                                                                                                                                                                                                                                                                                                                                   |
| #sso.plugins                             | To enable SSO, uncomment the line.                                                                                                                                                                                                                                                                                    | <pre>sso.plugins=com.oracle.hsgbu.empirica.sso.EmpiricaSsoPlugin</pre>                                                                                                                                                                                                                                                                                                                             |
| #sso.EmpiricaSsoPlugin.username.header   | <p>To enable SSO, uncomment the line.</p> <p>The value of the sso.EmpiricaSsoPlugin.username.header property depends on your OAM configuration.</p>                                                                                                                                                                   | <pre>sso.EmpiricaSsoPlugin.username.header=OAM_REMOTE_USER</pre>                                                                                                                                                                                                                                                                                                                                   |
| #sso.EmpiricaSsoPlugin.logoutRedirectUrl | To enable SSO, uncomment the line, and replace the sample URL with your logout URL in the form <https://ssoServer:port/oamssso/logout.jsp>.                                                                                                                                                                           | <pre>sso.EmpiricaSsoPlugin.logoutRedirectUrl=&lt;OAM_logout_URL&gt;? end_url=https:// myserver:7004/ Signal</pre>                                                                                                                                                                                                                                                                                  |
| #help.url                                | To point to more current help content than what appears in the application by default, uncomment the line and replace with the url for the most recent help content.                                                                                                                                                  | <pre>help.url=https:// docs.oracle.com/pls/topic/lookup? ctx=en/industries/ health-sciences/ empirica- signal/9.1/ userguide&amp;id</pre>                                                                                                                                                                                                                                                          |

- c. Save and close the file.
6. 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.

## Set up the `webvdme.properties` file for Oracle Empirica Topics

To use Oracle Empirica Topics, set up the `webvdme.properties` file.

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. If this is a new installation or an upgrade from Oracle Empirica Signal 8.x, 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. If you are upgrading Oracle Empirica Topics from any 8.x version, copy your previous Oracle Empirica Topics `webvdme.properties` to the `<INSTALL_DIR>/TopicsService/WEB-INF/classes` directory, for example:

```
$ cp /u01/stage/Signal_Install_old/TopicsService/WEB-INF/classes/webvdme.properties
/u01/stage/Signal_Install/TopicsService/WEB-INF/classes/webvdme.properties
```

4. Using a text editor, open the `webvdme.properties` file.
5. Edit the `instance.name` parameter.

The instance name should match the instance name you provided for the Oracle Empirica Signal `webvdme.properties` file. For more information, see [Set up the `webvdme.properties` file for Oracle Empirica Signal](#).

## Set 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. If this is a new installation:

- a. Copy the `template_listener.properties` file into the same directory, and name the copy `listener.properties`, for example:

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

- b. Using a text editor, open the `listener.properties` file.

- c. Edit the parameters as needed according to the following table:

| Parameter                            | Description                                                                                                                                                                                                                                                                                                                                                                       | Example                                                       |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| (Upgrade only)<br>mgps_mem_limit     | If the value of this parameter was larger in the <code>listener.properties</code> file for your previous version of Oracle Empirica Signal, update the parameter with the larger value.                                                                                                                                                                                           | -                                                             |
| (Upgrade only)<br>mgps_prr_mem_limit | For the property <code>mgps_prr_mem_limit</code> , default value is 1054686. If your previous version of Oracle Empirica Signal was larger, update the parameter with the larger value.                                                                                                                                                                                           | -                                                             |
| (Upgrade only) fetch_size            | If the value of this parameter was larger in the <code>listener.properties</code> file for your previous version of Oracle Empirica Signal, update the parameter with the larger value.                                                                                                                                                                                           | -                                                             |
| mgps_path                            | Specify the path to the MGPS executable. For more information, see <a href="#">Install MGPS</a> .                                                                                                                                                                                                                                                                                 | <code>mgps_path=u01/app/oracle/product/Signal/bin/MGPS</code> |
| r_path                               | If R version 3.3 is installed on your application server, specify the path to the directory where R is installed.                                                                                                                                                                                                                                                                 | <code>r_path=/usr/lib64/R</code>                              |
| rgps_command                         | If R version 3.3 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.<br><br>You can execute the <code>which R</code> command to determine the path.<br><br>For more information, see <a href="#">Install the RGPS add-on package to the R library</a> . | <code>rgps_command=/usr/bin/R</code>                          |



| Parameter       | Description                                                                                                                                                                                                                                       | Example                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| rgps_cpus_count | Maximum Number of CPU cores to use in RGPS execution.<br><br>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. | rgps_cpus_count=2                                     |
| sqlldr_path     | Specify the path to the SQL Loader executable.                                                                                                                                                                                                    | sqlldr_path=/u01/app/oracle/product/19.3.0/bin/sqlldr |

**d.** Save and close the file.

For all other upgrades, copy your previous `listener.properties` to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:

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

## Set up the `report_listener.properties` file

You create and edit the `report_listener.properties` file to enable Oracle 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 [Set up the 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 <INSTALL_DIR>/Signal/WEB-INF/classes
```

2. If this is a new installation, 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. For all other upgrades, copy your previous `report_listener.properties` to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:

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

4. Using a text editor, open the `report_listener.properties` file.

5. 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.
6. Save and close the file.

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

You create and edit the `webvdme-fonts.properties` file to store font information for Oracle 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. If this is a new installation:
  - a. 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
```

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

- c. 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 Oracle Empirica Signal installation files.

- d. Save and close the file.
3. For all other upgrades, copy your previous `webvdme_fonts.properties` to the `<INSTALL_DIR>/Signal/WEB-INF/classes` directory, for example:

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

## Set up the `log4j2.xml` file for Oracle Empirica Signal

You edit the `log4j2.xml` file to specify where to store Oracle 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 `log4j2.xml` file.

3. Set the `<Property name="filePath">` tag parameter to the directory where to store the Oracle Empirica Signal log files, for example:

```
<Property name="filePath">/u01/app/oracle/product/Signal/logs</Property>
```

(Upgrade only) If you customized the `log4j.properties` file for the previous release of the Oracle Empirica Signal software, apply the customizations to the `log4j2.xml` file for the current release.

4. Save and close the file.
5. Set the permissions on the directory containing the log file to enable write access for the non-privileged user account.

## Set up the log4j2.xml file for Oracle Empirica Topics

You edit the `log4j2.xml` file to specify where to store the Oracle 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 `log4j2.xml` file.
3. Set the `<Property name="filePath">` tag parameter to the directory where to store the Oracle Empirica Topics log files, for example:

```
<Property name="filePath">/u01/app/oracle/product/Signal/logs</Property>
```

(Upgrade only) If you customized the `log4j.properties` file for the previous release of the Oracle Empirica Signal software, apply the customizations to the `log4j2.xml` file for the current release.

4. Save and close the file.

## Set up the ldap.properties file

To integrate Oracle 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*.

If you are upgrading from a previous version, copy your previous `ldap.properties` file to the installation area. For example:

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

## Upgrade from Oracle Empirica Signal release 9.0.x to 9.1

Perform these tasks to upgrade from Oracle Empirica Signal 9.0.x to 9.1.

- [Restore site-specific properties files](#)  
To upgrade from Oracle Empirica Signal 9.0.x to 9.1, it is necessary to restore site-specific properties files.

- **Preserve the Oracle WebLogic Server deployment files**  
To upgrade Oracle Empirica Signal from 9.0. to 9.1, perform this task.
- **Preserve custom home pages, images, and release notes from a previous release (upgrade only)**  
Perform these steps to preserve any customizations you made to previous releases and to copy *Release Notes* documents from previous releases.

## Restore site-specific properties files

To upgrade from Oracle Empirica Signal 9.0.x to 9.1, it is necessary to restore 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_Install_old/Signal/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. Update the `webvdme.properties` file in `/u01/stage/Signal_Install/Signal/WEB-INF/classes`:
  - a. Update the Oracle Empirica Signal help URL content from `/u01/stage/Signal_Install/Signal/WEB-INF/classes/template_webvdme.properties` and, if custom help is configured, uncomment `help.url`:
 

```
Signal help URL
To override the default help URL, uncomment and change the
major version and patchset version if available of the URL
e.g., help.url=https://docs.oracle.com/pls/topic/lookup?ctx=en/
industries/health-sciences/empirica-signal/9.1/userguide&id=
help.url=https://docs.oracle.com/pls/topic/lookup?ctx=en/
industries/health-sciences/empirica-signal/
<majorVersion.minor.Version.[patchsetVersion]/userguide&id=
```
  - b. Remove deprecated property `oracleHelpCenter.url` and related content.
 

```
Oracle Help Center URL for hosting help content
If the property or its value is not set, then help will
default to the local help file
oracle.HelpCenter.url=https://docs.oracle.com/health-sciences-
empirica-signal-90./ESIUG
```
4. Copy the `listener.properties` file to the installation area. For example:
 

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

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

6. Copy the `webvdme-fonts.properties` file to the installation area. For example:
 

```
$ cp webvdme-fonts.properties /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
7. Copy the `log4j2.xml` file to the installation area, overwriting the existing file. For example:
 

```
$ cp -f log4j2.xml /u01/stage/Signal_Install/Signal/WEB-INF/classes
```
8. If Oracle Empirica Signal is integrated with LDAP, copy the Oracle Empirica Signal file to the installation area. For example:
 

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

 **Note:**

If you don't use Oracle Empirica Topics, skip to the next section.

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

```
$ cp webvdme.properties /u01/stage/Signal_Install/TopicsService/WEB-INF/classes
```
11. Copy the `log4j2.xml` file to the installation area, overwriting the existing file. For example:
 

```
$ cp -f log4j2.xml /u01/stage/Signal_Install/TopicsService/WEB-INF/classes
```

## Preserve the Oracle WebLogic Server deployment files

To upgrade Oracle Empirica Signal from 9.0. to 9.1, perform this task.

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_Install_old/Signal`.
2. If a `Plan.xml` file exists, copy it to the Oracle Empirica Signal installation area. For example:
 

```
$ cp Plan.xml /u01/stage/Signal_Install/Signal
```
3. Navigate to the backup directory `<INSTALL_DIR>/Signal_Install_old/TopicsService`.
4. Copy `Plan.xml` to the TopicsService installation area in the same location. For example:
 

```
$ cp Plan.xml /u01/stage/Signal_Install/TopicsService/TopicsService
```
5. Copy plan folder to the TopicsService installation area in the same location. For example:
 

```
$ cp -r plan /u01/stage/Signal_Install/TopicsService
```

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

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

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

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_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 Oracle Empirica Signal software, a PDF document of the *User Guide and Online Help* for prior releases, the Logistic Regression in Oracle 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 the following location:

```
/u01/stage/Signal_Install_old/Signal/customhomes
to the following location:
```

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

### Note:

The home page file name `home.inc` is reserved for system use in Oracle Empirica Signal 9.1. If your custom home page file is named `home.inc`, it will not be used. Please rename the file to another name and reflect that change in the respective login group settings.

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

```
/u01/stage/Signal_Install_old/Signal/image
to the following location:
```

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

 **Note:**

The logo file name `logo.gif` is reserved for system use in Oracle Empirica Signal 9.1. If your custom logo file is named `logo.gif`, it will not be used. Please rename the file to another name and reflect that change in the respective login group settings.

# 6

## Deploy the Oracle Empirica Signal application

- [Create the Oracle Empirica Signal deployment on the Oracle WebLogic Server \(skip for 9.0.x upgrade\)](#)  
Skip this task if you are upgrading from Oracle Empirica Signal 9.0.x.
- [Create the Oracle Empirica Topics web service deployment on the Oracle WebLogic Server \(skip for 9.0.x upgrade\)](#)  
Follow these steps only if you use Oracle Empirica Topics.
- [Set up the Oracle Empirica Topics web service security policy](#)  
Follow these steps only if you use Oracle Empirica Topics.
- [Deploy the Oracle Empirica Signal application \(9.0.x upgrade only\)](#)  
Follow these instructions to deploy the Oracle Empirica Signal 9.0.x upgrade.
- [Deploy the Oracle Empirica Topics web service \(9.0.x upgrade only\)](#)  
Follow these instructions to deploy the Oracle Empirica Topics 9.0.x upgrade.

### Create the Oracle Empirica Signal deployment on the Oracle WebLogic Server (skip for 9.0.x upgrade)

Skip this task if you are upgrading from Oracle Empirica Signal 9.0.x.

1. In a Web 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. On the Locate deployment to install and prepare for deployment page:

- a. In the **Path** field, enter the path to the `jax-rs` library, for example:

```
/u01/app/oracle/product/Middleware12c/wlserver/common/deployable-libraries
```

- b. Select **jax-rs-2.0.war**.

- c. Click **Next**.

7. On the Choose targeting style page:

- a. Select **Install this deployment as a library**.



- b. Click **Next**.
8. On the Select deployment targets page:
  - a. Select **SignalServer**.
  - b. Click **Next**.
9. On the Optional Settings page, in the **Source Accessibility** section:
  - a. Select **Copy this application onto every target for me**.
  - b. Click **Next**.
10. Click **Finish**.
11. Click **Save**.
12. In the Domain Structure pane, click **Deployments**.  
**jax-rs** appears in the Deployments table.
13. In the Change Center pane, click **Activate Changes**.
14. In the Domain Structure pane, click **Deployments**.
15. In the Change Center pane, click **Lock & Edit**.
16. In the Deployments table, click **Install**.  
The Install Application Assistant wizard appears.
17. On the Locate deployment to install and prepare for deployment page:
  - a. In the **Path** field, enter the path to the <INSTALL\_DIR>.
  - b. Select **Signal**.
  - c. Click **Next**.
18. On the Choose targeting style page:
  - a. Select **Install this deployment as an application**.
  - b. Click **Next**.
19. On the Select deployment targets page:
  - a. Select **SignalServer**.
  - b. Click **Next**.
20. On the Optional Settings page, in the **Source Accessibility** section:
  - a. Select **Copy this application onto every target for me**.
  - b. Click **Next**.
21. Click **Finish**.  
After a few moments, the Oracle Empirica Signal deployment is created.
22. Click **Save**.
23. In the Domain Structure pane, click **Deployments**.  
**Signal** appears in the Deployments table.
24. In the Change Center pane, click **Activate Changes**.  
The deployment state changes to Prepared.
25. In the Deployments table, select the Signal deployment and open **Control** tab.

26. Expand the **Start** drop-down list, and select **Servicing all requests**.
27. If prompted to confirm, click **Yes**.  
The deployment state changes to Active.

## Create the Oracle Empirica Topics web service deployment on the Oracle WebLogic Server (skip for 9.0.x upgrade)

Follow these steps only if you use Oracle Empirica Topics.

1. In a Web 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. On the Locate deployment to install and prepare for deployment page, perform the following:
  - a. In the **Path** field, enter the path to the <INSTALL\_DIR>.
  - b. Select **TopicsService** and click **Next**.
7. On the Choose targeting style page, select **Install this deployment as an application** and click **Next**.
8. On the Select deployment targets page, select **TopicsServer** and click **Next**.
9. On the Optional Settings page, perform the following:
  - a. Select **Copy this application onto every target for me**.
  - b. Click **Next**, then **Finish**.  
After a few moments, the `TopicsService` deployment is created.
  - c. Click **Save**.
10. In the Domain Structure pane, click **Deployments**.  
**TopicsService** appears in the Deployments table.
11. In the Change Center pane, click **Activate Changes**.  
The deployment state changes to Active.
12. In the Deployments table, select the **TopicsService** deployment and **Control** tab.
13. Expand the **Start** drop-down list and select **Servicing all requests**.
14. If prompted to confirm, click **Yes**.  
The deployment state changes to Active.

## Set up the Oracle Empirica Topics web service security policy

Follow these steps only if you use Oracle Empirica Topics.

1. In a Web 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 left navigation pane, click **Servers** and select **TopicsServer**.
4. At the top, expand **WebLogic Server** and select **Web Services**.
5. Click **EmpiricaTopicsPort**.  
After one or two minutes, information about the EmpiricaTopicsPort web service appears.
6. Select the **WSM Policies** tab.
7. Click the **Attach/Detach Policies** link.
8. Under **Directly Attached Policies**, click **Attach/Detach**.
9. In the Attach/Detach Policies(EmpiricaTopicsPort) window, search 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`
10. Click **Attach**.  
The policy appears in the Directly Attached Policies table.
11. Click **Validate**.  
A confirmation message appears.
12. Click **OK**, then 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 Oracle Empirica Topics web service.

## Deploy the Oracle Empirica Signal application (9.0.x upgrade only)

Follow these instructions to deploy the Oracle Empirica Signal 9.0.x upgrade.

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.

(Optional) Enter the result of the procedure here.

## Deploy the Oracle Empirica Topics web service (9.0.x upgrade only)

Follow these instructions to deploy the Oracle Empirica Topics 9.0.x upgrade.

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 **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.

# 7

## Post-installation configuration

- [Set the passwords of the system and admin users \(installation only\)](#)  
You must set passwords for the **system** and **admin** users for the product installation to be complete.
- [Configure the Oracle Empirica Signal software](#)  
Before you can use Oracle Empirica Signal, you must configure the Oracle Empirica Signal software.
- [Install report data \(installation only\)](#)  
You install a small data stub on the Oracle Database to enable the standard reports in the Oracle Empirica Signal application. The data stub includes the AERS (1q03:S) data configuration.
- [Import the sample topic workflow configuration \(installation only\)](#)  
This section describes how to import the sample topic workflow configuration.

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

You must set passwords for the **system** and **admin** users for the product installation to be complete.

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

The **admin** account is a non-SSO superuser account. You use the **admin** account to log in initially so you can create local users and configure the Oracle Empirica Signal software.

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 /<INSTALL_DIR>/bin/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:
  - **JAVA\_HOME**—Path to the Java installation directory.
  - **COMMON\_COMPONENTS\_HOME**—Path to the `oracle_common` subdirectory in the `WebLogic Middleware` directory.
  - **JPS\_CONFIG\_FILE**—Path to the OPSS configuration file, which is located in the `config/fmwconfig` subdirectory of the Oracle WebLogic Server domain home directory by default.
  - **JPS\_MANIFEST\_JAR**—Path to the `JPS_MANIFEST_JAR` file for your version of the Oracle WebLogic Server.

- **INSTALL\_ROOT**—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. Enter 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. Reenter the password, and press **Enter**.
      - If the passwords match, a confirmation message appears.
      - If the passwords don't match, an error message appears. You must run the command again and enter 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. Enter the password for the **admin** user, and press **Enter**.

 **Note:**

You use this password to log in to the Oracle 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. Reenter the password, and press **Enter**.
  - If the passwords match, a confirmation message appears.
  - If the passwords don't match, an error message appears. You must run the command again and enter matching passwords.

## Configure the Oracle Empirica Signal software

Before you can use Oracle Empirica Signal, you must configure the Oracle Empirica Signal software.

For information about each task, see the *User Guide and Online Help*.

1. In a Web browser window, navigate to the 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, use:

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

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

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

2. Enter the credentials necessary to log in as the **admin** user.
  - **Username**—admin
  - **Password**—The password you created in [Set the passwords of the system and admin users](#).

 **Note:**

For upgrades, use the credentials from your previous installation.

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

- a. Change the password.

You are logged out of the application.
- 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 3.3 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 [Set 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 Oracle 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, if it does not already exist.
  - b. If you self-host Oracle Empirica Signal and use Oracle Access Manager for SSO, create the same user in the Oracle Empirica Signal application.  
  
If Oracle hosts your instance of Oracle Empirica Signal, you do not need to perform this step.
  - c. In a Web browser window, navigate to the login page.
  - d. Log in as the newly created SSO user.  
  
The home page appears.
  - e. Click **Exit**.  
  
You are logged out.

## Install report data (installation only)

You install a small data stub on the Oracle Database to enable the standard reports in the Oracle 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. Enter the following command on one line to execute the script:
 

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

 A password prompt appears.
- e. Enter the Oracle system account password.  
A second password prompt appears.
- f. Enter 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. Enter the password for the **AERS68\_TO\_1Q03** account that you created in step 2 f.
4. To import the supplied standard **AERS (1Q03: S)** configuration into the Oracle Empirica Signal application:
  - a. Log in to the Oracle Empirica Signal application using the **admin** user name.
  - b. Click **Settings** and then **Manage Configurations**.
  - c. Click **Import Configurations**.
  - d. Enter **AERS68\_TO\_1Q03** as the account name.
  - 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 configuration's **Row Action menu**, and select **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.

## Import the sample topic workflow configuration (installation only)

This section describes how to import the sample topic workflow configuration.

These steps are required only if you intend to use the Oracle Empirica Topics feature and you have performed the steps in [Set up the Topic Workflow database account \(optional, installation only\)](#). 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 Oracle Empirica Signal application using the **admin** username.
2. Click **Settings** and then **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. Enter the following account name:  
TOPIC\_WORKFLOW
6. Click **Import**.
7. Verify that 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*.

# 8

## Configure Signal Management 9.0 features

- [AERS Interactive Signal Management Configuration](#)  
Upgrade the AERS Interactive Signal Management Configuration as necessary.
- [ARGUS Interactive Signal Management Configuration](#)  
Upgrade the ARGUS Interactive Signal Management Configuration as necessary.
- [Scripted Oracle Empirica Signal Configuration](#)  
To take advantage of the configurable alert feature of Oracle Empirica Signal 9.1, refresh scripts need to be modified.

### AERS Interactive Signal Management Configuration

Upgrade the AERS Interactive Signal Management Configuration as necessary.

Refer to Chapter 3, Upgrading AERS signal configuration from 8.1.1.1 and 9.0 to 9.1 in *AERS Signal Management for Use with Oracle Empirica Signal Installation and Upgrade Instructions* for details.

### ARGUS Interactive Signal Management Configuration

Upgrade the ARGUS Interactive Signal Management Configuration as necessary.

Refer to Chapter 4, Upgrading Argus signal configuration from 8.1.x and 9.0 to 9.1 in *Oracle Argus Mart Data and Signal Management for Use with Oracle Empirica Signal Installation and Instructions* for details.

### Scripted Oracle Empirica Signal Configuration

To take advantage of the configurable alert feature of Oracle Empirica Signal 9.1, refresh scripts need to be modified.

Contact Oracle Health Sciences Consulting.

# 9

## Troubleshooting

- [Issue: An error occurs when you try to log in because the application cannot connect to the database](#)  
Try these steps in order, testing after each step to determine whether the issue is resolved.
- [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.
- [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.

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

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

#### Resolution:

1. Restart Oracle WebLogic Server using the following commands:

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

2. In the Oracle WebLogic Server 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 that 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 Oracle WebLogic Server start script (`startWebLogic.sh`) in your domain directory, for example:

```
/u01/app/oracle/Middleware12c/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 Oracle WebLogic Server 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/Middleware12c/
user_projects/domains/empirica/servers/SignalServer/stage/Signal/
Signal/...
```

- f. In Oracle Enterprise Manager, update the permission codebase paths in System Policies to reflect the missing permission.
- g. Restart Oracle WebLogic Server using the following commands:

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

- h. After the permission issue is resolved, remove the debug options, and start Oracle WebLogic Server 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

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

```
$ cd /u01/app/oracle/Middleware12c/user-projects/domains/empirica/
config/fmwconfig
```

2. In a command shell, start **WLST** using a command such as:

```
$ /u01/app/oracle/Middleware12c/oracle_common/common/bin/wlst.sh
```

The following prompt appears:

```
wls:/offline>
```

3. 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.
4. To exit WLST, execute the **exit()** command.

#### The data source associated with the OPSS schema database account

1. Open the Oracle WebLogic Server Administration Console.
2. Expand **Services**, and select **Data Sources**.
3. Select the **Data Source** entry.  
If you followed the recommendations in [Create a data source for credential access](#), the data source is named **Empirica Credential Store**, and the JDNI name is `jdbc/mds/opss`.
4. Select the **Configuration** tab, and select the **Connection Pool** tab.
5. In the Change Center section on the left, click **Lock & Edit**.
6. Scroll to the **Password** and **Confirm Password** fields.
7. Enter the account password in both fields, and click **Save**.
8. 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 Oracle WebLogic Server 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. Enter the account password in both fields, and click **Save**.
9. In the Change Center section on the left, click **Activate Changes**.

# 10

## Single sign-on (SSO)

- [Set up Oracle Access Manager \(OAM\)](#)  
To configure the Oracle 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.

### Set up Oracle Access Manager (OAM)

To configure the Oracle 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>Empirica Signal </hostIdentifier>
 <agentName>Empirica Signal</agentName>
 <cachePragmaHeader>private</cachePragmaHeader>
 <cacheControlHeader>private</cacheControlHeader>
 <protectedResourcesList>
 <resource>/Signal/</resource>
 <resource>/Signal</resource>
 </protectedResourcesList>
 <publicResourcesList>
 <resource>/index.html</resource>
 <resource>/Signal/ping.jsp</resource>
 <resource>/Signal/utlLogout.jsp</resource>
 <resource>/Signal/include/logout.inc</resource>
 <resource>/Signal/css/*</resource>
 </publicResourcesList>
 <excludedResourcesList>
 <resource>/Signal/image/*</resource>
 <resource>/Signal/servlet/event/</resource>
 <resource>/js/libs/**</resources>
 </excludedResourcesList>
</OAMRegRequest>
```



# 11

## Get the application server ready for Oracle Empirica Signal with Oracle WebLogic Server 12c

- [About getting the application server ready for Oracle Empirica Signal with Oracle WebLogic Server 12c](#)  
You must perform these procedures before you install the Oracle Empirica Signal application.
- [Install Oracle WebLogic Server 12c](#)  
Download and install Oracle WebLogic Server 12c.
- [Install Oracle ADF Runtime 12c](#)  
Download and install Oracle ADF Runtime 12c.
- [Install Oracle Fusion Middleware Repository Creation Utility \(RCU\) and create repositories](#)  
Install the Oracle Fusion Middleware Repository Creation Utility (RCU) and create repositories.
- [Set up Oracle WebLogic Server domain 12c](#)  
Complete these tasks to set up the Oracle WebLogic Server domain 12c.

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

You must perform these procedures before you install the Oracle 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](#)  
Complete these prerequisite installation tasks.
- [Set environment variables](#)  
Edit configuration scripts to set environment variables for the command shells you use on your application server using your privileged account and sudo.

## Prerequisites

Complete these prerequisite installation tasks.

- JDK version 8 update 201 (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 19c, 18c, or 12c database must be installed on the DB server.

 **Note:**

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

- The corresponding Oracle database client must be installed on the application server.

## Set environment variables

Edit configuration scripts to set environment variables for the command shells you use on your application server using your privileged account and sudo.

To edit files, you use commands such as the following:

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

The first command logs you in as `root`. If you are prompted for your password after entering this command, enter your password, not the password of root.

You must log out and log in again for the changes you make in this section to take effect.

To set environment variables, perform the following:

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/19.3.0
NLS_LANG=AMERICAN_AMERICA.AL32UTF8
JAVA_HOME=<jdk_home_location>
export ORACLE_BASE ORACLE_HOME 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.



WebLogic Fusion Middleware 12c Oracle 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`.

3. Click **Next**.  
The Auto Updates page appears.
4. Select the relevant option and click **Next**.  
The Installation Location page appears.
5. Enter the appropriate location for Oracle Home. For example:  
`/u01/app/oracle/product/Middleware12c`
6. Click **Next**.  
The Installation Type page appears.
7. Select **WebLogic Server**.
8. Click **Next**.  
The Prerequisite Checks page appears.
9. 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**.  
The Configuration Type page appears
13. Click **Cancel**.  
A confirmation dialog appears.
14. Click **Yes**.

## Install Oracle ADF Runtime 12c

Download and install Oracle ADF Runtime 12c.

**To download Oracle ADF Runtime 12c:**

1. Go to <https://www.oracle.com/technetwork/developer-tools/adf/downloads/index.html> or to <http://edelivery.oracle.com> .
2. Under Application Development Runtime, select version **12.2.1.3** and download the file.
3. Save the `fmw_12.2.1.3.0_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_12.2.1.3.0_infrastructure.jar
```

 **Note:**

Ignore the error about the monitor. When confirmation is asked, enter **Y** and press the **Return** key.

The ADF installation wizard is launched.

3. Click **Next**.  
The Auto Updates page appears.
4. Select the relevant option and click **Next**.  
The Installation Location page appears.
5. For the Oracle Home, enter the directory created during WebLogic 12c installation.  
For example:  

```
/u01/app/oracle/product/Middleware12c
```
6. Click **Next**.  
The Installation Type page appears.
7. Select **Fusion Middleware Infrastructure**.
8. Click **Next**.  
The Prerequisite Checks page appears.
9. When prerequisite checks status is 100%, 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**.

## Install Oracle Fusion Middleware Repository Creation Utility (RCU) and create repositories

Install the Oracle Fusion Middleware Repository Creation Utility (RCU) and create repositories.

1. To locate the RCU shell script, go to <Middleware\_Home>/oracle\_common/bin. For example:  

```
/u01/app/oracle/product/Middleware12c/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. Enter 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**.

10. If prompted, click **Ignore** to ignore the warning about supported databases.

The Checking Prerequisites dialog box appears.

11. When checking is complete, click **OK**.

The Select Components page appears.

12. In the **Create new prefix** field, enter a prefix, such as **EMPIRICA**.

13. Expand **AS Common Schemas**.

14. Select **Metadata Services** and **Oracle Platform Security Services**.

Audit-related checkboxes are automatically selected.

15. Click **Next**.

The Repository Creation Utility - Checking Prerequisites dialog box appears.

16. Click **OK**.

The Schema Passwords page appears.

17. Specify the schema passwords and click **Next**.

 **Note:**

Keep the schema passwords for future reference.

The Map Tablespaces page appears.

18. Click **Next**.

A confirmation dialog box appears.

19. Click **OK**.

The tablespaces are validated and created.

20. Click **OK**.

The Summary page appears.

21. Click **Create**.

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

22. Click **Close**.

## Set up Oracle WebLogic Server domain 12c

Complete these tasks to set up the Oracle WebLogic Server domain 12c.

- [Create and configure Oracle WebLogic Server domain 12c](#)  
Follow these steps to create and configure Oracle WebLogic Server domain 12c.
- [Create a boot identity file](#)  
A boot identity file contains the user credentials for starting and stopping an instance of Oracle 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.
- [Create the nodemanager.properties file 12c](#)  
Follow these steps to create the nodemanager.properties file.
- [Start the Oracle WebLogic Server and the Node Manager](#)  
Follow these steps to start the Oracle WebLogic Server and the Node Manager.
- [Create a data source for credential access](#)  
Follow these steps to set up a data source in the Oracle WebLogic Server Administration Console for the credential store.
- [Configure SSL](#)  
Perform the following steps to configure the Oracle WebLogic Server to use SSL for production use of the Oracle Empirica Signal application.

## Create and configure Oracle WebLogic Server domain 12c

Follow these steps to create and configure Oracle WebLogic Server domain 12c.

1. In a command shell,  
go to `<Middleware_Home>/wlserver/common/bin`. For example:  
`/u01/app/oracle/product/Middleware12c/oracle_common/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 Oracle Fusion Middleware Configuration Wizard is launched.

3. Select **Create a new domain** and specify the domain location, for example:  
`/u01/app/oracle/product/Middleware12c/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 Available Templates list, select the following templates:
  - Basic WebLogic Server Domain - 12.2.1.3.0 [wlserver]
  - Oracle Enterprise Manager - 12.2.1.3.0 [em]
  - Oracle WSM Policy Manager - 12.2.1.3 [oracle\_common]
  - Oracle JRF - 12.2.1.3.0 [oracle\_common]
  - WebLogic Coherence Cluster Extension - 12.2.1.3.0 [wlserver]
7. Click **Next**.  
The Application Location page appears.
8. Check the Domain name, Domain location, and Application location.
9. Click **Next**.  
The Administrator Account page appears.
10. Enter a user name and password for Oracle WebLogic Server administration.

 **Note:**

You will use these credentials to administer the Oracle WebLogic Server instance.

11. Click **Next**.  
The Domain Mode and JDK page appears.
12. Select **Production** and check the JDK location.
13. Click **Next**.  
The Database Configuration Type page appears.
14. Select **RCU Data**.
15. Enter the database connection details as follows:
  - **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**—Enter a value such as **EMPIRICA\_STB**.



- **Schema Password**—Enter the password that you used when you created the schema in [Install Oracle Fusion Middleware Repository Creation Utility \(RCU\)](#) and create repositories.
16. Click **Get RCU Configuration**, then click **Next**.  
The JDBC Component Schema page appears.
  17. Select all checkboxes and click **Next**.  
The JDBC Component Schema Test page appears.
  18. Click **Next**.
  19. After all connections have been tested successfully, click **Next**.  
The Advanced Configuration page appears.
  20. Select the following checkboxes:
    - Administration Server
    - Node Manager
    - Topology
    - Deployments and Services
  21. Click **Next**.  
The Administration Server page appears.
  22. Select **Enable SSL** and specify **7002** for **SSL Listen Port**.
  23. Click **Next**.  
The Node Manager page appears.
  24. Select **Per Domain Default Location** and enter node manager credentials.



**Note:**

Keep the node manager credentials for future reference.

25. Click **Next**.  
The Managed Servers page appears.
26. 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
27. 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
28. Click **Next**.  
The Clusters page appears.
  29. Click **Next**.  
The Server Templates page appears.
  30. Click **Next**.  
The Coherence Clusters page appears.
  31. Click **Next**.  
The Machines page appears.
  32. Select the **Unix Machine** tab.
  33. 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
  34. Click **Next**.  
The Assign Servers to Machines page appears.
  35. From the Servers list, select **SignalServer** and **TopicsServer** and move them to the **SignalMachine** in the Machines list.
  36. Click **Next**.  
The Virtual Targets page appears.
  37. Click **Next**.  
The Partitions page appears.
  38. Click **Next**.  
The Deployments Targeting page appears.
  39. Assign a deployment to the AdminServer:
    - a. In the list of Target Servers on the right, select **AdminServer**.
    - b. If not already listed under AdminServer/AppDeployment on the right, select the `wsm-pm` AppDeployment on the left and move it to the AdminServer target to augment the AppDeployment list.
    - c. If not already listed under AdminServer / Library on the right, select the `oracle.wsm.idmrest.sharedlib` Library on the left and move it to the AdminServer target to augment the Library list.
  40. To assign a deployment to the SignalServer, perform the following:
    - a. In the list of Target Servers on the right, select **SignalServer**.
    - b. Assign the **wsm-pm** application to the server.

- c. Assign the `oracle.wsm.idmrest.sharedlib` library to the server.
41. Repeat step 39 for TopicsServer.
42. Click **Next**.

The Services Targeting page appears.
43. If not already listed, add the following services to the **SignalServer**:
  - From **JDBCSystemResource**: `mds-owsm`
  - From the `Startup Class` directory: `JRF Startup Class`
44. Repeat step 43 for TopicsServer.
45. Click **Next**.

The Configuration Summary page appears.
46. Click **Create**.

The Configuration Progress page appears.

When the configuration is complete, a message appears stating that the domain has been created.
47. Click **Next**.

The End of Configuration page appears.
48. Click **Finish**.

## Create a boot identity file

A boot identity file contains the user credentials for starting and stopping an instance of Oracle 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 Oracle WebLogic Server 12c 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`, for example:

```
/u01/app/oracle/product/Middleware12c/user_projects/domains/empirica/
servers/AdminServer
```

4. If not present, 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.

## Create the `nodemanager.properties` file 12c

Follow these steps to create the `nodemanager.properties` file.

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

1. Navigate to the `$WL_HOME/user_projects/domains/<domain_name>/bin` directory. For example:

```
/u01/app/oracle/product/Middleware12c/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 [Create and configure Oracle WebLogic Server domain 12c](#).

3. When the `<secure socket listener started on port 5556>` message appears in the Console, 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/Middleware12c/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**.

- `weblogic.StopScriptEnabled`
- `weblogic.StartScriptEnabled`

6. Save the file, then exit the vi editor.

## Start the Oracle WebLogic Server and the Node Manager

Follow these steps to start the Oracle WebLogic Server and the Node Manager.

1. Navigate to the `$WL_HOME/user_projects/domains/<domain_name>/bin` directory using a command such as the following:

```
$ cd /u01/app/oracle/product/Middleware12c/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 a Web browser, enter the URL for the Oracle WebLogic Server Administration Console, such as the following:

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

- b. Log in using the Oracle WebLogic Server 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 a Web browser, enter the URL for the Oracle WebLogic Server Administration Console, such as the following:

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

- b. Log in using the Oracle WebLogic Server 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 a Web browser, enter the URL for the Oracle Enterprise Manager, such as the following:  
`https:// <servername> :7002/em`
  - b. Log in using the Oracle WebLogic Server administrator credentials.
  - c. From the navigation icon in the upper-left corner, expand **Weblogic Domain**, expand **empirica**, and select **SignalServer**.
  - d. Click the **Lock** icon and select **Lock & Edit**.
  - e. At the top of the page, click **Apply JRF Template**.
  - f. Click the **Lock** icon and select **Activate Changes**.
  - g. From the navigation icon in the upper-left corner, expand **WebLogic Domain**, expand **empirica**, and select the **TopicsServer**.
  - h. Click the **Lock** icon and select **Lock & Edit**.
  - i. At the top of the page, click **Apply JRF Template**.
  - j. Click the **Lock** icon and select **Activate Changes**.
7. Restart the SignalServer and TopicsServer managed servers:
  - a. In a Web browser, enter the URL for the Oracle WebLogic Server Administration Console, such as the following:  
`https:// <servername> :7002/console`
  - b. Log in using the Oracle WebLogic Server 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. After the states of the SignalServer and TopicsServer change to **Shutdown**, select the checkboxes for SignalServer and TopicsServer in the table, and click **Start**.
  - h. In the left panel, expand **Environment** and select **Coherence Clusters**.
  - i. In the right panel, click the **defaultCoherenceCluster** link.
  - j. Click the **Members** tab and check if any server is part of the cluster.
  - k. Remove server(s) from the cluster by unchecking corresponding box(s). To do this you may need to click the **Lock & Edit** button on the left panel.
  - l. When done, click **Activate Changes**.

## Create a data source for credential access

Follow these steps to set up a data source in the Oracle WebLogic Server Administration Console for the credential store.

1. In a Web browser, enter the URL for the Oracle WebLogic Server 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. Enter values for the following fields:
  - **Name**—For example, enter **Empirica Credential Store**.
  - **JNDI Name**—For example, enter **jdbc/mds/opss**.
6. Click **Next**.

The JDBC Data Source Properties page appears.

7. From the **Database Driver** drop-down list, choose:
  - **Oracle's Drive (Thin XA) for Instance Connections; Versions: Any**—to address your database using its instance name.
  - **Oracle's 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, enter the service name or SID.
  - **Host Name**
  - **Port**
  - **Database User Name**—For example, **EMPIRICA\_OPSS**.
  - **Password, Confirm Password**—Enter 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, 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.

## Configure SSL

Perform the following steps to configure the Oracle WebLogic Server to use SSL for production use of the Oracle Empirica Signal application.

The Oracle 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.

For more information, see the following document:

<https://docs.oracle.com/middleware/1221/wls/SECMG/ssl.htm>

1. Obtain an SSL certificate from a Certification Authority.
2. Using the Oracle WebLogic Server Administration Console, configure AdminServer, SignalServer, and TopicsServer to use your SSL certificate.

For more information, see the following document:

[https://docs.oracle.com/middleware/1221/wls/SECMG/identity\\_trust.htm#SECMG365](https://docs.oracle.com/middleware/1221/wls/SECMG/identity_trust.htm#SECMG365)

3. Configure the Node Manager to use your SSL certificate.

For more information, see the following document:

[https://docs.oracle.com/middleware/12213/wls/NODEM/java\\_nodemgr.htm#NODEM173](https://docs.oracle.com/middleware/12213/wls/NODEM/java_nodemgr.htm#NODEM173)