Oracle Life Sciences Empirica

Installation and Upgrade Instructions

Release 9.2.3

G16537-01

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G16537-01

Contents

Preface

This preface contains the following sections:

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.

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- English interface Customer Support Portal (https://hsgbu.custhelp.com/)
- Japanese interface Customer Support Portal (https://hsgbu-jp.custhelp.com/)

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Product overview

How to use this document

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

Some of the sections in the chapters that follow are either installation-specific or upgrade-specific. Look for "installation only" or "upgrade only" in the section title. Procedures without these labels are applicable to all upgrades and installations.

Assumptions

To complete the procedures in this guide, you should be familiar with the following:

- 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

File	Description
Signal_Install-9_2_3_0_XXX.tar.gz	Components for installing the Oracle Empirica Signal software.
Signal-9_2_3_0_XXX.zip	Build that you install, where XXX is the build number.
Signal-9_2_3_0_XXX-Database.zip	Scripts for setting up the Oracle Empirica Signal database account.
TopicsService-9_2_3_0_XXX.zip	Components for installing the Empirica Topics software.

File	Description
RGPS_9_2_3_0_XXX.tar.gz	RGPS add-on package for R.
Data_Stub.zip	Components for installing the small data account needed for Oracle Empirica Signal standard reports.
Signal-9_2_3_0_XXX-OBIEE.zip	Scripts for installing JADER Signal Management. Oracle Business Intelligence/Oracle Analytics Server for Topics reporting.
Signal-9_2_3_0_xxx-custom.zip	Scripts for installing the custom user interfaces for interactive reports.
Update_AM_for_Signal_9_2_3_0_XXX.zip	Scripts for upgrading Oracle Argus Mart for use by Oracle Empirica Signal.
Argus_Prep_3_0_0_2_XXX.zip	Scripts for installing Argus Signal Management.
AERS_Prep_3_0_0_2_XXX.zip	Scripts for installing Interactive AERS Signal Management.
JADER_Prep_3_0_0_1_xxx.zip	Scripts for installing JADER Signal Management.
VAERS_Prep_3_0_0_3_XXX.zip	Scripts for installing VAERS 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.

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Plan your installation

Prerequisites to upgrade (upgrade only)

You should be running Oracle Empirica Signal release 9.1 or later before upgrading to release 9.2.3.

You can upgrade from releases 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x. to release 9.2.3.

If upgrading from versions before 9.0, please use the 9.0 upgrade guide as first step.

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, back up your database first.

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

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.

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

> **Note:**
>
> The password must not contain a dollar sign symbol ($).

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 and needed only if you plan to run the OQ test.
- Apply upgrade scripts to Oracle Empirica Signal 9.0.x schemas (upgrade only)
  Schema upgrade is incremental. If you are upgrading from a version prior to Signal 9.2.2.x, multiple scripts need to be executed.
- Upgrade Signal Management configuration schemas
  Upgrade these configuration schemas.
- Install MGPS
  Install the MGPS program that supports Multi-item Gamma Poisson Shrinker (MGPS) data mining. For more information, see the *User Guide and Online Help*.
- Install or upgrade the RGPS add-on package to the R library
  If you have R version 4.0.5 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.
- 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
  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
  You must configure the Oracle WebLogic Server instances.
- Start the Oracle WebLogic Server and the Node Manager
  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.

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

1. Navigate to your home directory, for example:

   ```
   $ cd ~
   ```

2. Using a text editor, open the `.login` file. If the file does not exist, you will create it.
3. Add the following text to the file:

   umask 027

4. 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 9.1.0.x, 9.2.0.x, 9.2.1.x ,or 9.2.2.x on the same application server, rename the old `Signal_Install` directory before executing the steps below. For example, change the directory name to `Signal_Install_old`.

1. Unpack the `Signal_Install-9_2_3_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_2_3_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.

2. Unpack the contents of the `Signal-9_2_3_0_XXX.zip` file into the directory, for example:

   ```
   $ unzip Signal-9_2_3_0_XXX.zip -d /u01/stage/Signal_Install/Signal
   ```

3. If you use Oracle Empirica Topics, unpack the `TopicsService-9_2_3_0_XXX.zip` file into the `TopicsService` subdirectory in the installation directory, for example:

   ```
   $ unzip TopicsService-9_2_3_0_XXX.zip -d
   /u01/stage/Signal_Install/TopicsService
   ```

   > **Note:**
   >
   > If you have previously installed Oracle Empirica Signal 9.1.0.x, 9.2.0.x, 9.2.1.x or 9.2.2.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_2_3_0_XXX-Database.zip` file:

   a. Create a `Database` directory:

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

b. Unpack the contents of the `Signal-9_2_3_0_XXX-Database.zip` file into the directory, for example:

```
$ unzip Signal-9_2_3_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_tablespaces_linux.sql` file:

   a. Using a text editor, open the `1_create_webvdme_tablespaces_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'
      ```

   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.
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.

> **Note:**
>
> 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.

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 and needed only if you plan to run the OQ test.

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.

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 9.0.x schemas (upgrade only)

Schema upgrade is incremental. If you are upgrading from a version prior to Signal 9.2.2.x, multiple scripts need to be executed.

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

1. Perform the following steps to upgrade database schemas to 9.1.0.
   a. Navigate to the Database folder, for example:

   ```
   $ cd /u01/stage/Database/Signal9.1.0.0
   ```

   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 completes, verify `update_9_0_to_9_1.log`.
2. Perform the following steps to upgrade database schemas to 9.2.0.
   a. Navigate to the Database folder, for example:

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

   b. Using a text editor, open the `update_9_1_to_9_2.sql` file.
   c. Update WEBVDME_USER and TOPIC_WORKFLOW_USER to actual value.
   d. As the SYS database user, execute the `update_9_1_to_9_2.sql` script to update the schema from 9.1.0.x to 9.2, for example:

   ```
   $ sqlplus SYS@<TNS_NAME> as sysdba @update_9_1_to_9_2.sql
   ```

   A password prompt appears.
   e. Enter the SYS database account password.
   f. Once the execution completes, verify that there are no errors in the log files `update_9_1_to_9_2.log` and `update_all_smcs.log`.

   > **Note:**
   >
   > When verifying the logs, ignore any messages caused by dropping an object that does not exist, such as *User or role 'DATA_ADMIN' does not exist.*

3. Perform the following steps to upgrade database schemas to 9.2.1.

a. Navigate to the Database folder, for example:

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

b. As the WEBVDME database user, execute the `update_9_2_to_9_2_1.sql` script to update the schema from 9.2.0.x to 9.2.1, for example:

```
$ sqlplus webvdme@<TNS_NAME> @update_9_2_to_9_2_1.sql
```

A password prompt appears.

c. Enter the WEBVDME database account password.

d. Once the execution completes, verify that there are no errors in the log files `update_9_2_to_9_2_1.log` and `update_all_smcs.log`.

4. Perform the following steps to upgrade database schemas to 9.2.2.

a. Navigate to the Database folder, for example:

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

b. Using a text editor, open the `update_9_2_1_to_9_2_2.sql` file.

c. Update WEBVDME_USER to actual value.

d. As the SYS database user, execute the `update_9_2_1_to_9_2_2.sql` to update the schema from 9.2.1.x to 9.2.2, for example:

```
$sqlplus SYS@<TNS_NAME> as sysdba @update_9_2_1_to_9_2_2.sql
```

A password prompt appears.

e. Enter the SYS database account password.

f. Once the execution completes, verify that there are no errors in any of the log files, such as `update_9_2_1_to_9_2_2.log`.

5. Perform the following steps to upgrade database schemas to 9.2.3.

a. Navigate to the Database folder, for example:

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

b. Using a text editor, open the `update_9_2_2_to_9_2_3.sql` file.

c. Update WEBVDME_USER to actual value.

d. As the SYS database user, execute the `update_9_2_2_to_9_2_3.sql` to update the schema from 9.2.2.x to 9.2.3, for example:

```
$sqlplus SYS@<TNS_NAME> as sysdba @update_9_2_2_to_9_2_3.sql
```

A password prompt appears.

e. Enter the SYS database account password.

f. Once the execution completes, verify that there are no errors in any of the log files, such as `update_9_2_2_to_9_2_3.log`.

6. If you use the Oracle Empirica Topics feature, perform the following steps to upgrade the Oracle Empirica Topics schema:

- If you are upgrading from Signal 9.0.x :

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. Enter the SYS database account password.

d. Once the execution completed, verify `update_twc_9_0_to_9_1.log`.

- If you are upgrading from Signal 9.0.x, or 9.1.x:
  a. Using a text editor, open the `update_twc_9_1_to_9_2.sql` file.
  b. Update WEBVDME_ACCOUNT and TOPIC_WORKFLOW_USER.
  c. As the **SYS** database user, execute the `update_twc_9_1_to_9_2.sql` script to update TWC schema from 9.1.x to 9.2, for example:
     ```
     $ sqlplus SYS@<TNS_NAME> as sysdba @update_twc_9_1_to_9_2.sql
     ```
     A password prompt appears.
  d. Enter the **SYS** database account password.
  e. Once the execution completed, verify `update_twc_9_1_to_9_2.log`.

Upgrade Signal Management configuration schemas

Upgrade these configuration schemas.

- Interactive Signal Management Configuration
  If using interactive signal management provided by Oracle, refer to the specific interactive signal management instructions.
- Scripted Signal Management Configuration
  Follow these directions to upgrade the Scripted Signal Management Configuration from 9.1.x or a release prior to 9.2.3.

Interactive Signal Management Configuration

If using interactive signal management provided by Oracle, refer to the specific interactive signal management instructions.

Upgrade Argus Mart signal configuration, as described in *Oracle Argus Mart Data and Signal Management for Use with Oracle Empirica Signal Installation and Upgrade Instructions*.

Upgrade FDA AERS signal configuration, as described in *AERS Signal Management for Use with Oracle Empirica Signal Installation and Upgrade Instructions*.

Upgrade VAERS signal configuration, as described in *VAERS Signal Management for Use with Oracle Empirica Signal Installation and Upgrade Instructions*.

Scripted Signal Management Configuration

Follow these directions to upgrade the Scripted Signal Management Configuration from 9.1.x or a release prior to 9.2.3.

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
   ```

If upgrading from a release prior to 9.2.3, upgrade the Scripted Signal Management Configuration

1. 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 is 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`
2. Edit the `06_install_signal_tables.sh` file in the `/u01/stage/projects/vaers_prep/sigmgt` directory and move the lines in Block 1 to after the lines in Block 2. This should be done for each Scripted Signal Management configuration.
   Block 1:

```
invoke_dbcmd "$G_SQLPLUS""$webvdme_connect_str" \
                      "@db/06_create_drugoverview_view
\
                          $INFO_SIGNALDRUGPROP_TABLE
\
                          $INFO_SIGNALDRUGOVERVIEWBASE_TABLE
\
                          $INFO_SIGNALDRUGOVERVIEW_TABLE" \
                      "Creating the signaldrugoverview view"
```

Block 2:

```
invoke_dbcmd "$G_SQLPLUS""$webvdme_connect_str" \
                      "@db/06_install_sigmgt_tables \
                         $G_VAERS_SIGNAL_PREP_ACCT \
                         $INFO_SIGNALDRUGOVERVIEWBASE_TABLE
\
                         $INFO_SIGNALSUMMARY_TABLE \
                         $INFO_SIGNALSTATGROUP_TABLE \
      SIGNALSUBSETDEF_${INFO_ALL_SIGNAL_TABLE_GROUP_ID}\
      SIGNALSUBSETDEF_${INFO_US_SIGNAL_TABLE_GROUP_ID} \
                         ${SITE_VAERS_SIGMGT_CONFIGID} \
                         $INFO_SIGNALDRUGPROP_TABLE \
                         $INFO_PERIOD_PRIOR0" \
                      "Installing the updated signal management tables in
the $SITE_WEBVDME_ACCT account"
```

> **Note:**
>
> If you have questions regarding upgrading Scripted Signal Management configurations, contact Oracle Support.

Install MGPS

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

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

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

1. For a new install, 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 or upgrade the RGPS add-on package to the R library

If you have R version 4.0.5 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.

For new installations or for upgrading from previous versions that already have the RGPS add-on package installed and have been updated to R version 4.0.5, 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_2_3_0_XXX.tar.gz`.
2. Execute the following command:

   ```
   $ sudo R CMD INSTALL RGPS_9_2_3_0_XXX.tar.gz
   ```

> **Note:**
>
> If you are upgrading Oracle Empirica Signal and want to continue using R 3.6.1 and RGPS with Oracle Empirica Signal 9.2.3, contact Oracle Support.

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.

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 **enable** and **daemon-reload** commands to enable Xvfb:

   ```
   $ sudo su - root
   # cp <INSTALL_DIR>/service/xvfb.service
   /usr/lib/systemd/system
   # cd /usr/lib/systemd/system
   # systemctl enable xvfb.service
   # systemctl daemon-reload
   ```

   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 **start** command to start Xvfb, for example:

   ```
   # systemctl status xvfb.service
   # systemctl start xvfb.service
   ```

The following response appears:

```
Started Start Virtual Framebuffer to support generation of Empirica Signal
graphs…
```

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

Modify the default Oracle WebLogic Server configuration files

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=:99.0
      ```

   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

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:

      ```
      -Xms2048m -Xmx8192m -XX:MaxPermSize=1024m -
      Dorg.owasp.esapi.resources=servers/SignalServer/stage/Signal/Signal/WEB-
      INF/classes
      ```

   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
```

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

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 &
```

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.

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.

4

Configure database credentials (skip for upgrades from 9.1 or later)

- 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.
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.

> **Note:**
>
> All text fields are case-sensitive.

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:

      - **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:
      - **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:
      - **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:
      - **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}`

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.CredentialAccessPermission`
      - **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}
      ```

   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 upgrades from 9.1 or later)
  Set up these Oracle Empirica Signal properties files.
- Upgrade from Oracle Empirica Signal release 9.1 or later
  Perform these tasks to upgrade from Oracle Empirica Signal 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x to 9.2.3.

Set up the Oracle Empirica Signal properties files (skip for upgrades from 9.1 or later)

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
   ```

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

Parameter	Description	Example
sqlldr_connect	Specify the value `<TNS_NAME>`.	`sqlldr_connect=orcl`
temp_dir	Specify the path to the /temp directory you created in Step 1.	`temp_dir=/u01/app/oracle/product/Signal/temp`
instance.name	If you plan to use one application server to host multiple instances of Oracle Empirica Signal, provide the name of the instance. If you do not plan to use one application server to host multiple instances of Oracle Empirica Signal, leave the `instance.name` blank.	`instance.name`=dev or `instance.name=`

Parameter	Description	Example
#topicsService.url	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. If you do not plan to use the Oracle Empirica Topics feature, uncomment the line, and set the `topicsService.url` parameter to empty.	`topicsService.url=https://myserver:7006/TopicsService/ws/topicsService` 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 Set up the Oracle Empirica Topics web service security policy. For a non-SSL environment, use http and the appropriate port.
topicsService.maxAttachmentSizeMB	Specify the maximum allowed size for Oracle Empirica Topics attachments in MB. The recommended value is 100 MB.	`topicsService.maxAttachmentSizeMB=100`
#sso.plugins	To enable SSO, uncomment the line.	`sso.plugins=com.oracle.hsgbu.empirica.sso.EmpiricaSsoPlugin`
#sso.EmpiricaSsoPlugin.username.header	To enable SSO, uncomment the line. The value of the `sso.EmpiricaSsoPlugin.username.header` property depends on your OAM configuration.	`sso.EmpiricaSsoPlugin.username.header=OAM_REMOTE_USER`
#sso.EmpiricaSsoPlugin.logoutRedirectUrl	To enable SSO, uncomment the line, and replace the sample URL with your logout URL in the form `<https://ssoServer:port/oamsso/logout.jsp>`.	`sso.EmpiricaSsoPlugin.logoutRedirectUrl=<OAM_logout_URL>?end_url=https://myserver:7004/Signal`
#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.	`help.url=https://docs.oracle.com/pls/topic/lookup?ctx=en/industries/health-sciences/empirica-signal/9.2.2/userguide&id`
#feedback.url	Specifies the path to Oracle Health Sciences Support.	`#feedback.url=https://www.oracle.com/industries/health-sciences/support.html`

b. If you wish to configure IP Access Control List, edit the following parameters according to the table below:

Parameter	Description	Example
#IPACL_ENABLE=FALSE	To configure Access Control List (ACL) in the Signal application, uncomment this parameter and set the value to TRUE. Controls whether IP Access Control Lists are enabled or disabled. Valid Options: TRUE -> Enable ACL Checks FALSE -> Do not enable ACL Checks	`IPACL_ENABLE=TRUE`
#IPACL_ SOURCE	Uncomment the parameter and set the value to SOURCE_IP. Specifies where to obtain the source IP. This parameter is evaluated only when IPACL_ENABLE is set to TRUE. Valid Options: SOURCE_IP -> Evaluate ACL based on source IP of HTTP request HEADER -> Evaluate ACL based on the value of a header within the http request	`IPACL_ SOURCE = SOURCE_IP`
#IPACL_HEADER_NAME	This parameter defines which HTTP header contains the IP address. This parameter is evaluated only when IPACL_ENABLE is set to TRUE and IPACL_SOURCE is set to HEADER. Typically, this value is FORWARED-FOR, X-FORWARED-FOR, or COOKIE **Note:** This implementation does not support the COOKIE header.	`IPACL_HEADER_NAME=X-FORWARED-FOR`
# IPACL_HEADER_VALUE_REGEX	This parameter determines how the IP address is parsed from a header value. This parameter is evaluated only when IPACL_ENABLE is set to TRUE and IPACL_SOURCE is set to HEADER. The default value is \b\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}\b (the first thing resembling an IP address).	`#IPACL_HEADER_VALUE_REGEX=\\b\\d{1,3}\\.\\d{1,3}\\.\\d{1,3}.\\d{1,3}\\b(\\s*,\\s*\\b\\d{1,3}\\.\\d{1,3}\\.\\d{1,3}.\\d{1,3}\\b)*`

Parameter	Description	Example
# IPACL_ALLOW	Add IP addresses to the IPACL_ALLOW list separated by comma. Defines the whitelist of IP addresses able to access the application. This parameter is both evaluated and required only when IPACL_ENABLE is set to TRUE. The format is as follows, in Backus Normal Form notation: <ip4-octet> ::= <0..255 <ip4-address> ::= <ip4- octet >.<ip4- octet >.<ip4- octet >.<ip4- octet > <ip4-range> ::= <ip4-address>-<ip4-address> <ip4-entry > ::= <ip4-address> | <ip4-range> <ip_acl_list > := <ip4-entry > | <ip4-entry > {, <ip4-entry >} IPACL_ALLOW : <ip_acl_list > Examples: IPACL_ALLOW : 192.168.1.100 IPACL_ALLOW : 192.168.1.100, 192.168.1.101 IPACL_ALLOW : 192.168.1.100-192.168.1.200 IPACL_ALLOW : 192.168.1.100-192.168.1.200, 10.1.1.20	`IPACL_ALLOW =192.168.1.100-192.168.1.200, 10.1.1.20`

c. Save and close the file.

7. 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. Open the `webvdme.properties` file in a text editor.

   a. Edit the parameters according to the following table:

Parameter	Description	Example
instance.name	Edit the instance name to match the instance name you provided for the Oracle Empirica Signal `webvdme.properties` file. See Set up the webvdme.properties file for Oracle Empirica Signal.	See Set up the webvdme.properties file for Oracle Empirica Signal

#feedback.url	Specifies the path to Oracle Health Sciences Support.
	Add these two lines for the `Feedback` parameter:
	`# Feedback URL`
	`#feedback.url=https://www.oracle.com/industries/health-sciences/support.html`
		`# Feedback URL`
		`#feedback.url=https://www.oracle.com/industries/health-sciences/support.html`

   b. If you wish to configure IP Access Control List for Oracle Empirica Topics, edit the following parameters according to the table below:

Parameter	Description	Example
#IPACL_ENABLE=FALSE	To configure Access Control List (ACL) in TopicsService, uncomment this parameter and set the value to TRUE. Controls whether IP Access Control Lists are enabled or disabled. Valid Options: TRUE -> Enable ACL Checks FALSE -> Do not enable ACL Checks	`IPACL_ENABLE=TRUE`

Parameter	Description	Example
#IPACL_ SOURCE	Uncomment the parameter and set the value to SOURCE_IP. Specifies where to obtain the source IP. This parameter is evaluated only when IPACL_ENABLE is set to TRUE. Valid Options: SOURCE_IP -> Evaluate ACL based on source IP of HTTP request HEADER -> Evaluate ACL based on the value of a header within the http request	`IPACL_ SOURCE = SOURCE_IP`
#IPACL_HEADER_NAME	This parameter defines which HTTP header contains the IP address. This parameter is evaluated only when IPACL_ENABLE is set to TRUE and IPACL_SOURCE is set to HEADER. Typically, this value is FORWARED-FOR, X-FORWARED-FOR, or COOKIE **Note:** This implementation does not support the COOKIE header.	`IPACL_HEADER_NAME=X-FORWARED-FOR`
# IPACL_HEADER_VALUE_REGEX	This parameter determines how the IP address is parsed from a header value. This parameter is evaluated only when IPACL_ENABLE is set to TRUE and IPACL_SOURCE is set to HEADER. The default value is \b\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}\b (the first thing resembling an IP address).	`#IPACL_HEADER_VALUE_REGEX=\\b\\d{1,3}\\.\\d{1,3}\\.\\d{1,3}.\\d{1,3}\\b(\\s*,\\s*\\b\\d{1,3}\\.\\d{1,3}\\.\\d{1,3}.\\d{1,3}\\b)*`

Parameter	Description	Example
# IPACL_ALLOW	Add IP addresses to the IPACL_ALLOW list separated by comma. Defines the whitelist of IP addresses able to access the application. This parameter is both evaluated and required only when IPACL_ENABLE is set to TRUE. The format is as follows, in Backus Normal Form notation: <ip4-octet> ::= <0..255 <ip4-address> ::= <ip4- octet >.<ip4- octet >.<ip4- octet >.<ip4- octet > <ip4-range> ::= <ip4-address>-<ip4-address> <ip4-entry > ::= <ip4-address> | <ip4-range> <ip_acl_list > := <ip4-entry > | <ip4-entry > {, <ip4-entry >} IPACL_ALLOW : <ip_acl_list > Examples: IPACL_ALLOW : 192.168.1.100 IPACL_ALLOW : 192.168.1.100, 192.168.1.101 IPACL_ALLOW : 192.168.1.100-192.168.1.200 IPACL_ALLOW : 192.168.1.100-192.168.1.200, 10.1.1.20	`IPACL_ALLOW =192.168.1.100-192.168.1.200, 10.1.1.20`

5. Save and close 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.

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 `template.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) mgps_mem_limit	If the value of this parameter was larger in the `listener.properties` file for your previous version of Oracle Empirica Signal, update the parameter with the larger value.	-
(Upgrade only) mgps_prr_mem_limit	For the property `mgps_prr_mem_limit`, 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 `listener.properties` 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 Install MGPS.	`mgps_path=u01/app/oracle/product/Signal/bin/MGPS`
r_path	If R version 4.0.5 is installed on your application server, specify the path to the directory where R is installed.	`r_path=/usr/lib64/R`
rgps_command	If R version 4.0.5 is installed on your application server and you want to enable Regression-adjusted Gamma Poisson Shrinker (RGPS) computations, specify the path to the command that starts R. You can execute the `which R` command to determine the path. For more information, see Install or upgrade the RGPS add-on package to the R library.	`rgps_command=/usr/bin/R`
rgps_cpus_count	Maximum Number of CPU cores to use in RGPS execution. This value should be less than the total number of CPU cores on the machine. A larger number will speed up RGPS execution but may affect other activities on the application server.	`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 *GoNotoCurrentJp* font as the base font, for example:

```
iText.TABLE_WRITER_BASE_FONT_PATH=GoNotoCurrentJp.ttf
iText.CASE_SERIES_DETAIL_BASE_FONT_PATH=GoNotoCurrentJp.ttf
iText.TOPIC_WRITER_BASE_FONT_PATH=GoNotoCurrentJp.ttf
```

The *GoNotoCurrentJp* 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 and specify the *GoNotoCurrentJp* font as the base font, for example:

```
iText.TABLE_WRITER_BASE_FONT_PATH=GoNotoCurrentJp.ttf
iText.CASE_SERIES_DETAIL_BASE_FONT_PATH=GoNotoCurrentJp.ttf
iText.TOPIC_WRITER_BASE_FONT_PATH=GoNotoCurrentJp.ttf
```

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 the Oracle Empirica Signal log files will be stored; 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 the Oracle Empirica Topics log files will be stored; 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 9.1 or later

Perform these tasks to upgrade from Oracle Empirica Signal 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x to 9.2.3.

- Restore site-specific properties files
  To upgrade from Oracle Empirica Signal 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x to 9.2.3, it is necessary to restore site-specific properties files.
- Preserve the Oracle WebLogic Server deployment files
  To upgrade Oracle Empirica Signal from 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x to 9.2.3, 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 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x to 9.2.3, 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.x/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:

   ```
   iText.TABLE_WRITER_BASE_FONT_PATH=GoNotoCurrentJp.ttf
   iText.CASE_SERIES_DETAIL_BASE_FONT_PATH=GoNotoCurrentJp.ttf
   iText.TOPIC_WRITER_BASE_FONT_PATH=GoNotoCurrentJp.ttf
   ```

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
   ```

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 9.1.0.x, 9.2.0.x, 9.2.1.x, or 9.2.2.x to 9.2.3, 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`

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`

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. If your custom logo file is named `logo.gif`, it will not be used. Please rename your customer logo file 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

To deploy Oracle Empirica Signal, create the deployment 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 **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

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

Follow these instructions to deploy the Oracle Empirica Signal 9.2.3 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.

Deploy the Oracle Empirica Topics web service

Follow these instructions to deploy the Oracle Empirica Topics 9.2.3 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.
- Import the sample topic workflow configuration (installation only)
  To use the Oracle Empirica Topics feature, import the sample topic workflow configuration.
- 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.
- Upgrade Oracle Business Intelligence or Oracle Analytics Server
  If you have Oracle Business Intelligence or Oracle Analytics configured with Oracle Empirica Signal, upgrade Oracle Analytics Server.

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 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
      - 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.

Import the sample topic workflow configuration (installation only)

To use the Oracle Empirica Topics feature, 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.
8. Verify that the sample topic created is listed on the Topic Management page.

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

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.

      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.

Upgrade Oracle Business Intelligence or Oracle Analytics Server

If you have Oracle Business Intelligence or Oracle Analytics configured with Oracle Empirica Signal, upgrade Oracle Analytics Server.

To upgrade Oracle Business Intelligence or Oracle Analytics, see Upgrade OBIEE/OAS for Oracle Empirica Topics 9.2.3 in the *Oracle Health Sciences Empirica Topics Reporting and Oracle Analytics Configuration Guide*.

8

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.

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>no-cache</cachePragmaHeader>
    <cacheControlHeader>no-cache</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>
```

9

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.

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.

- 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 database must be installed on the DB server.
- 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.

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

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

2. Edit the `/etc/csh.login` file as follows:
   a. Add the following lines to the file.

```
setenv ORACLE_BASE /u01/app/oracle
setenv ORACLE_HOME /u01/app/oracle/product/19.3.0
setenv NLS_LANG AMERICAN_AMERICA.AL32UTF8
setenv JAVA_HOME <jdk_home_location>
```

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

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

Install Oracle WebLogic Server 12c

Download and install Oracle WebLogic Server 12c.

To download Oracle WebLogic Server 12c, perform the following:

1. Go to https://docs.oracle.com/en/middleware/fusion-middleware/12.2.1.4/mstrd/index.html or to http://edelivery.oracle.com.
2. Under Oracle WebLogic Server 12.2.1.4, select **Generic**.

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

To install Oracle WebLogic Server 12c:

1. In the command shell, unzip the downloaded file, for example:
   ```
   $ unzip fmw_12.2.1.4.0_wls_Disk1_1of1.zip
   ```
2. Run the following:
   ```
   $ java -jar fmw_12.2.1.4.0_wls.jar
   ```

   WebLogic Fusion Middleware 12c Oracle WebLogic Server and Coherence Installation is launched.
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/middleware/technologies/weblogic-server-installers-downloads.html or to http//edelivery.oracle.com .
2. Under Application Development Runtime, select version **12.2.1.4** and download the file.
3. Save the `fmw_12.2.1.4.0_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_12.2.1.4.0_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.
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**.

    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 [wlserver]
   - Oracle Enterprise Manager [em]
   - Oracle WSM Policy Manager [oracle_common]
   - Oracle JRF [oracle_common]
   - WebLogic Coherence Cluster Extension [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.

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`

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 Driver (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.

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**, **SignalServer**, and **TopicsServer**.
15. Click **Finish**.
16. In the upper-left corner of the page, in the Change Center section, click **Activate Changes**.

    A message appears, indicating that the changes have been activated. The Credential Store Data Source entry is created.

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`
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`

10

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.

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**.

11

Change log

Date	Part number	Description
November 2024	G16537-01	Changes for 9.2.3: • Updated file names and versions as necessary. • Removed outdated content. • Updated applying upgrade scripts. • Updated content, for more information see: – Restore site-specific properties files – Set up the webvdme-fonts.properties file
August 2023	F82912-01	Rebranded as Life Sciences document. No changes to 9.2.2 content; however, the *9.2.2 to 9.2.2.1 Upgrade Guide* refers to this guide.
April 2023	F70453-01	9.2.2 release.
August 2022	F56762-02	Fixed broken links.
July 2022	F56762-01	9.2.1 release.