



Configuring CSA to Work with Oracle RAC

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Scope and Purpose of this Document

Enterprise applications such as HPE Cloud Service Automation (CSA) are usually deployed in high-availability database environments. This document describes Oracle Real Application Clusters (Oracle RAC) configuration for CSA. This document does not cover how to install CSA nor how to install and configure Oracle RAC.

Oracle RAC

Oracle RAC provides clustering and high availability for Oracle database environments. In an Oracle RAC environment, two or more database instances concurrently access a single database. A typical Oracle RAC environment includes the instances running on different physical machines with a Single Client Access Name (SCAN) that allows clients to access the database using a single hostname/IP address, instead of specifying the hostnames/IP addresses for each of the instances in the connection URL.

CSA Database Configuration for Non-Oracle RAC

The CSA installer prompts users to enter database information (such as the server hostname/IP address, port, Oracle service name, username, and password). This information is stored in a configuration file and used by the Cloud Service Management Console to connect to the database.

In a **standalone environment**, the configuration file is located at:

Windows: %CSA_HOME%\jboss-as\standalone\configuration\standalone.xml

Linux: \$CSA_HOME/jboss-as/standalone/configuration/standalone.xml

All the database configuration information is specified in the <datasource> element. For example:

```
<!-- csa datasource setup -->
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS">
  <connection-url>jdbc:oracle:thin:@//127.0.0.1:1521/XE</connection-url>
  <driver>oracleDriver</driver>
  <pool>
    <min-pool-size>10</min-pool-size>
    <max-pool-size>200</max-pool-size>
    <prefill>>true</prefill>
    <use-strict-min>>false</use-strict-min>
    <flush-strategy>FailingConnectionOnly</flush-strategy>
  </pool>
  <security>
    <security-domain>csa-encryption-sec</security-domain>
  </security>
</datasource>
```

NOTE: This example is for non-Oracle RAC environments.

In a **clustered environment**, the configuration file is located at:

Windows: %CSA_HOME%\jboss-as\standalone\configuration\standalone-full-ha.xml

Linux: \$CSA_HOME/jboss-as/standalone/configuration/standalone-full-ha.xml

All the database configuration information is specified in the <datasource> element. For example:

```
<!-- csa datasource setup -->
<datasource jta="true" jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS" enabled="true" use-java-
context="true" use-ccm="true">
  <connection-url>jdbc:oracle:thin:@//127.0.0.1:1521/XE</connection-url>
  <driver>oracleDriver</driver>
  <pool>
    <min-pool-size>10</min-pool-size>
    <max-pool-size>200</max-pool-size>
    <prefill>true</prefill>
    <use-strict-min>false</use-strict-min>
    <flush-strategy>FailingConnectionOnly</flush-strategy>
  </pool>
  <security>
    <security-domain>csa-encryption-sec</security-domain>
  </security>
</datasource>
```

NOTE: This example is for non-Oracle RAC environments.

CSA Database Configuration for Oracle RAC

To configure CSA to work with Oracle RAC:

Install CSA. In the screen that asks for database information, for the database hostname, enter the SCAN or hostname/IP address of one of the nodes allocated for the SCAN.

If this information is not correct, the installer is not able to connect to the database and installation cannot proceed until this issue is resolved.

After installing CSA, navigate to the configuration file. This file is located at:

Standalone Environment

- Windows: %CSA_HOME%\jboss-as\standalone\configuration\standalone.xml
- Linux: \$CSA_HOME/jboss-as/standalone/configuration/standalone.xml

Clustered Environment

- Windows: %CSA_HOME%\jboss-as\standalone\configuration\standalone-full-ha.xml
- Linux: \$CSA_HOME/jboss-as/standalone/configuration/standalone-full-ha.xml

Before modifying the standalone.xml or standalone-full-ha.xml file, back up the file by making a copy of it.

Find the section that configures the CSA datasource. An example is shown below:

Standalone Environment

```
<!-- idm datasource setup -->
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS">
<connection-url>jdbc:oracle:thin:@//127.0.0.1:1521/XE</connection-url>
```

Clustered Environment

```
<!-- csa datasource setup -->
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS">
<connection-url>jdbc:oracle:thin:@//127.0.0.1:1521/XE</connection-url>
```

```

<!-- idm datasource setup -->
<datasource jta="true" jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS" enabled="true" use-java-context="true" use-ccm="true">
<connection-url>jdbc:oracle:thin:@//127.0.0.1:1521/XE</connection-url>

<!-- csa datasource setup -->
<datasource jta="true" jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS" enabled="true" use-java-context="true" use-ccm="true">
<connection-url>jdbc:oracle:thin:@//127.0.0.1:1521/XE</connection-url>

```

Replace the <connection-url> element with the following (the highlighted text must be replaced with appropriate values):

```

<connection-url>
jdbc:oracle:thin:@(DESCRIPTION=(LOAD_BALANCE=on)(ADDRESS=(PROTOCOL=TCP)
(HOST=<SCAN_hostname>)(PORT=<port>))(CONNECT_DATA=(SERVICE_NAME=<servicename>)
(FAILOVER_MODE=(TYPE=SELECT)(METHOD=BASIC)(RETRIES=10)(DELAY=5))))
</connection-url>

```

Add the following <validation> element to the <datasource> element:

```

<validation>
<check-valid-connection-sql>select 1 from dual</check-valid-connection-sql>
<validate-on-match>>false</validate-on-match>
<background-validation>>true</background-validation>
<use-fast-fail>>false</use-fast-fail>
<exception-sorter class-name=
"org.jboss.jca.adapters.jdbc.extensions.oracle.OracleExceptionSorter"/>
</validation>

```

When you are done with these changes, the datasource configuration will look like the following:

NOTE: Elements highlighted below are the elements that you have changed and the bold text should be replaced with appropriate values.

Standalone Environment

```

<!-- csa datasource setup -->
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS">
<connection-url>
jdbc:oracle:thin:@(DESCRIPTION=(LOAD_BALANCE=on)(ADDRESS=(PROTOCOL=TCP)
(HOST=<SCAN_hostname>)(PORT=<port>))(CONNECT_DATA=(SERVICE_NAME=<servicename>)
(FAILOVER_MODE=(TYPE=SELECT)(METHOD=BASIC)(RETRIES=10)(DELAY=5)))) </connection-url>
<driver>oracleDriver</driver>
<pool>
<min-pool-size>10</min-pool-size>
<max-pool-size>200</max-pool-size>
<prefill>>true</prefill>
<use-strict-min>>false</use-strict-min>
<flush-strategy>FailingConnectionOnly</flush-strategy>
</pool>
<security>

```

```

    <security-domain>csa-encryption-sec</security-domain>
</security>
<validation>
    <check-valid-connection-sql>select 1 from dual</check-valid-connection-sql>
    <validate-on-match>>false</validate-on-match>
    <background-validation>>true</background-validation>
    <use-fast-fail>>false</use-fast-fail>
    <exception-sorter class-name=
"org.jboss.jca.adapters.jdbc.extensions.oracle.OracleExceptionSorter"/>
</validation>
</datasource>

```

Clustered Environment

```

<!-- csa datasource setup -->
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS" enabled="true" jta="true" use-java-
context="true" use-ccm="true">
    <connection-url>
jdbc:oracle:thin:@(DESCRIPTION=(LOAD_BALANCE=on)(ADDRESS=(PROTOCOL=TCP)
(HOST=<SCAN_hostname>)(PORT=<port>))(CONNECT_DATA=(SERVICE_NAME=<servicename>)
(FAILOVER_MODE=(TYPE=SELECT)(METHOD=BASIC)(RETRIES=10)(DELAY=5)))) </connection-url>
    <driver>oracleDriver</driver>
    <pool>
        <min-pool-size>10</min-pool-size>
        <max-pool-size>200</max-pool-size>
        <prefill>>true</prefill>
        <use-strict-min>>false</use-strict-min>
        <flush-strategy>FailingConnectionOnly</flush-strategy>
    </pool>
    <security>
        <security-domain>csa-encryption-sec</security-domain>
    </security>
    <validation>
        <check-valid-connection-sql>select 1 from dual</check-valid-connection-sql>
        <validate-on-match>>false</validate-on-match>
        <background-validation>>true</background-validation>
        <use-fast-fail>>false</use-fast-fail>
        <exception-sorter class-name=
"org.jboss.jca.adapters.jdbc.extensions.oracle.OracleExceptionSorter"/>
    </validation>

```

</datasource>

Restart CSA.

CSA is now connected to the Oracle RAC instance and supports failover. If one of the database instances goes down, CSA continues to function normally by connecting to another database instance that is up and running.

Upgrading a CSA Database Configuration for Oracle RAC

After upgrading CSA from version 4.10 or 4.2x to version 4.50, you must manually reconfigure CSA to work with Oracle RAC by completing the tasks described in the [CSA Database Configuration for Oracle RAC](#) section.

In a standalone environment:

The changes you need to make to the `standalone.xml` file in CSA version 4.50 are the same changes you made in the `standalone.xml` file for CSA version 4.10 or 4.2x. The 4.10 or 4.2x version of the `standalone.xml` file was backed up during the upgrade and you may copy the changes from this file (copy only the changes; do not copy the entire file).

The `standalone.xml` file from CSA version 4.10 or 4.2x is backed up to the following location:

Windows: `%CSA_HOME%_CSA_4_50_0_installation\Backup\standalone\standalone.xml`

Linux: `$CSA_HOME/_CSA_4_50_0_installation/Backup/standalone/standalone.xml`

In a clustered environment:

For CSA version 4.10, the changes you need to make to the `standalone-full-ha.xml` file in CSA version 4.50 are the same changes you made in the `domain.xml` file for CSA version 4.10. The `domain.xml` file was backed up during the upgrade and you may copy the changes from this file (copy only the changes; do not copy the entire file).

The `domain.xml` file from CSA version 4.10 is backed up to the following location:

Windows: `%CSA_HOME%_CSA_4_50_0_installation\Backup\domain\domain.xml`

Linux: `$CSA_HOME/_CSA_4_50_0_installation/Backup/domain/domain.xml`

For CSA version 4.2x, the changes you need to make to the `standalone-full-ha.xml` file in CSA version 4.50 are the same changes you made in the `standalone-full-ha.xml` file for CSA version 4.2x. The 4.2x version of the `standalone-full-ha.xml` file was backed up during the upgrade and you may copy the changes from this file (copy only the changes; do not copy the entire file).

The `standalone-full-ha.xml` file from CSA version 4.2x is backed up to the following location:

Windows: `%CSA_HOME%_CSA_4_50_0_installation\Backup\standalone\standalone-full-ha.xml`

Linux: `$CSA_HOME/_CSA_4_50_0_installation/Backup/standalone/standalone-full-ha.xml`

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