

# HP Cloud Service Automation

## Configuring HP CSA 4.01 to Work with Oracle RAC



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## Scope and Purpose of this Document

Enterprise applications such as HP CSA are usually deployed in high-availability database environments. This document describes Oracle RAC-specific configuration for HP CSA. This document does not cover how to install HP CSA, or 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 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.

## HP CSA Database Configuration for Non-RAC

The HP CSA installer prompts users to enter database information (server hostname/ip, username, password etc.). This information is stored in configuration files and used by the Cloud Service Management Console to connect to the database.

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

```
%CSA_HOME%/jboss-as-7.1.1.Final/standalone/configuration/standalone.xml (Windows)
$CSA_HOME\ jboss-as-7.1.1.Final\standalone\configuration\standalone.xml (Linux)
```

All the database configuration information is specified in the `<datasource>` element. An example is shown below:

```
<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:** The configuration in `standalone.xml` is for non-RAC environments.

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

```
%CSA_HOME%/jboss-as-7.1.1.Final/domain/configuration/domain.xml (Windows)
$CSA_HOME\jboss-as-7.1.1.Final\domain\configuration\domain.xml (Linux)
```

All the database configuration information is specified in the `<datasource>` element. An example is shown below:

```
<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> <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:** The configuration in domain.xml is for non-RAC environments.

## HP CSA Database Configuration for Oracle RAC

Getting HP CSA to work with Oracle RAC is straightforward with minimal changes to the standalone.xml or domain.xml file described in the previous section.

### Steps to Configure HP CSA for Oracle RAC

1. Install HP CSA. In the screen that asks for database information, enter the SCAN for the RAC and the service name or the hostname/ip address of one of the instances and its System Identifier (SID). If this information is not correct, the installer is not able to connect to the database and installation does not proceed until this issue is resolved.
2. After installing HP CSA, navigate to the configuration file. As specified in the previous section, this file is located at:

#### Standalone Environment

```
%CSA_HOME%/jboss-as-7.1.1.Final/standalone/configuration/standalone.xml
(Windows)
$CSA_HOME\jboss-as-7.1.1.Final\standalone\configuration\standalone.xml
(Linux)
```

#### Clustered Environment

```
%CSA_HOME%/jboss-as-7.1.1.Final/domain/configuration/domain.xml (Windows)
$CSA_HOME\jboss-as-7.1.1.Final\domain\configuration\domain.xml (Linux)
```

3. Before modifying the standalone.xml or domain.xml file, back up the file by making a copy of it. This copy might be needed should you upgrade to a newer version of HP CSA.

4. Find the section in the configuration file that configures the HP CSA datasource. An example is shown below:

### Standalone Environment

```
<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

```
<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>
```

5. Replace the <connection-url> element with the following:

```
<connection-url>
jdbc:oracle:thin:@(description=(address_list=(address=(protocol=tcp)
(host=<host1>)(port=<port1>))(address=(protocol=tcp)(host=<host2>)
(port=<port2>))(failover=yes)(load_balance=yes))(connect_data=
(service_name=<racdb>)(failover_mode=(type=select)(method=basic)(retries=10)
(delay=5))))
</connection-url>
```

**Note:** The bold text must be replaced with appropriate values.

6. Add the following 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 looks like the following:

**Note:** Elements highlighted below are the elements that you have changed and the bold text was replaced with appropriate values.

### Standalone Environment

```
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS">
  <connection-url>
  jdbc:oracle:thin:@(description=(address_list=(address=(protocol=tcp)(host=<host1>)
(port=<port1>))(address=(protocol=tcp)(host=<host2>)(port=<port2>))(failover=yes)
(load_balance=yes))(connect_data=(service_name=<racdb>)(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

```

<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=(address_list=(address=(protocol=tcp)(host=<host1>)
(port=<port1>))(address=(protocol=tcp)(host=<host2>)(port=<port2>))(failover=yes)
(load_balance=yes))(connect_data=(service_name=<racdb>)(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>

```

### 7. Restart HP CSA.

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

## Upgrading to HP CSA 4.01

If you are upgrading to HP CSA version 4.01, before running the upgrade installer, you must undo the changes you made to the standalone.xml file and then redo them after the upgrade installer has completed. The major steps are as follows:

- Revert the standalone.xml or domain.xml file to the backup copy you made when you initially configured HP CSA for Oracle RAC.
- Upgrade to HP CSA 4.01.
- Configure HP CSA for Oracle RAC.

The following steps explain this upgrade process in detail:

1. Revert the standalone.xml or domain.xml file to the backup copy you made when you initially configured HP CSA for Oracle RAC. If you did not make a copy of the file, replace the datasource section in the standalone.xml or domain.xml file with the following:

**Note:** The bold text must be replaced with appropriate values.

### Standalone Environment

```
<datasource jndi-name="java:jboss/datasources/csaDS" pool-name="OracleDS">
  <connection-url>jdbc:oracle:thin:@<dbhost>:<dbport>:<SID></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>
```

### Clustered Environment

```
<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:@ <dbhost>:<dbport>:<SID></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>
```

## Configuring HP CSA 4.01 to Work with Oracle RAC

2. Upgrade to HP CSA 4.01. Refer to the *HP Cloud Service Automation Upgrade Guide* for version 4.01 for more information.
3. Perform the procedure in the section entitled “[HP CSA Database Configuration for Oracle RAC](#)” in this document to configure Oracle RAC for HP CSA 4.01.