HP Cloud Service Automation

Configuring HP CSA to Work with Oracle RAC

Contents

Scope and Purpose of this Document

Enterprise applications such as HP Cloud Service Automation (HP CSA) are usually deployed in high-availability database environments. This document describes Oracle Real Application Clusters (Oracle RAC) configuration for HP CSA. This document does not cover how to install HP 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.

HP CSA Database Configuration for Non-Oracle RAC

The HP CSA installer prompts users to enter database information (such as the server hostname/IP address, port, Oracle SID, 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>    <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.

HP CSA Database Configuration for Oracle RAC

To configure HP CSA to work with Oracle RAC:

1. Install HP CSA. In the screen that asks for database information, if you enter the SCAN for the hostname, enter a System Identifier (SID) for one of the addresses allocated for the SCAN. If you enter the hostname/IP address of one of the instances, enter that instance's SID.

    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.

2. After installing HP 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`

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

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

    Standalone 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>
    ```

    Clustered Environment

    ```
    <!-- 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>
    ```

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

```
<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=<servicename>)(failover_mode=(type=select)(method=basic)
(retries=10)(delay=5))))
</connection-url>
```

6. 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=(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=<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=(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=<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>
```

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 HP CSA Database Configuration for Oracle RAC in an HP CSA Clustered Environment

If you are running HP CSA in a clustered environment and are upgrading to HP CSA version 4.20, after you upgrade to HP CSA version 4.20, you must manually reconfigure HP CSA to work with Oracle RAC by completing the tasks described in the **HP CSA Database Configuration for Oracle RAC** section. The changes you need to make to the standalone-full-ha.xml file in HP CSA version 4.20 are the same changes you made in the domain.xml file for the earlier version of HP CSA from which you upgraded. The domain.xml file was backed up during the upgrade and you may copy the changes from this file.

The domain.xml file from the earlier version of HP CSA is backed up to the following location:

- Windows: %CSA_HOME%_CSA_4_20_0_installation\Backup\domain\domain.xml

- Linux: $CSA_HOME/_CSA_4_20_0_installation/Backup/domain/domain.xml

For More Information

To access other toolkits to design and extend cloud services running on HP CloudSystem, go to **http://www.hp.com/go/csdevelopers**.

For more information about HP CloudSystem, visit **http://www.hp.com/go/cloudsystem**

HP software product documentation can be found at **https://softwaresupport.hp.com/**

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