Practices for Lesson 10: Oracle RAC Administration

Lab 10: Overview

Practices Overview

In these practices, you will contrast operating systems, password file authenticated connections, and Oracle database authenticated connections. You will also learn to stop a complete `ORACLE_HOME` component stack.

Practice 10-1: Operating System and Password File Authenticated Connections

Overview

In this practice, you adjust initialization parameters in the SPFILE, and stop and start the ASM instances on local and remote nodes.

1. Connect to your first node as the `oracle` user and set up your environment variables by using the `oraenv` script.

```
[oracle@ol7-122-rac1 ~]$ . oraenv
ORACLE_SID = [oracle] ? cdbrac
The Oracle base has been set to /u01/app/oracle
[oracle@ol7-122-rac1 ~]$$
```

2. Identify all the database instance names that are currently executing on your machine by using the Linux `ps` command.

   Note: All database instances have a mandatory background process named `pmon`, and the instance name will be part of the complete process name.

```
[oracle@ol7-122-rac1 ~]$ ps -ef | grep -i pmon
grid      3529     1  0 06:45 ?        00:00:16 asm_pmon_+ASM1
grid     15479     1  0 Nov20 ?        00:12:12 mdb_pmon_-MGMTDB
oracle   15813     1  0 08:02 ?        00:00:18 ora_pmon_cdbrac3
oracle   19607 16483  0 15:24 pts/1    00:00:00 grep -i pmon
```

3. Attempt to make a local connection to the `cdbrac`*`n`* instance by using SQL*Plus with the `sysdba` privilege. This is known as operating system authentication because a password is not needed. What happens when you are trying to connect to the instance?

```
[oracle@ol7-122-rac1 ~]$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 15:25:43
2014

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Connected to an idle instance.

SQL> exit
Disconnected
```

4. Attempt to connect to the instance by using a network connection string `@orcl` with the `sysdba` privilege. This is known as password file authentication. Is the connection successful this time?

```
[oracle@ol7-122-rac1 ~]$ sqlplus sys@orcl as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 15:27:50
2014

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter password: **** << Password is not displayed

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options

SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release
12.1.0.2.0 - 64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options
[oracle@ol7-122-rac1 ~]$
```

5. Display the values of the environment variables (`ORACLE_BASE`, `ORACLE_HOME`, `ORACLE_SID`, and so on) that were defined with the `oraenv` script in step 1.

```
[oracle@ol7-122-rac1 ~]$ env |
grep ORA
ORACLE_SID=orcl
ORACLE_BASE=/u01/app/oracle
ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1
[oracle@ol7-122-rac1 ~]$
```

6. Modify the `ORACE_SID` environment variable to match the actual database instance name for the `orcl` database.

```
[oracle@ol7-122-rac1 ~]$ export ORACLE_SID=cdbrac3
[oracle@ol7-122-rac1 ~]$
```

7. Attempt the local connection with system authentication to the local instance by using SQL*Plus with the `sysdba` privilege. This is the same command as in step 3.

```
[oracle@ol7-122-rac1 ~]$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 15:35:32
2014

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Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options

SQL>
```

8. Query the `instance_name` column of `the v$instance` dynamic performance view to validate the instance that you connected with. Exit SQL*Plus when finished.

```
SQL> select instance_name from v$instance;

INSTANCE_NAME
----------------------
cdbrac3

SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release
12.1.0.2.0 - 64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options
[oracle@ol7-122-rac1 ~]$
```

Practice 10-2: Oracle Database Authenticated Connections

Overview

In this practice, you will make multiple Oracle database authenticated connections to a database instance and notice the effects of load-balanced connections.

1. From your first node, connected as the `oracle` user, validate the instance names on each host.

```
[oracle@ol7-122-rac1 ~]$ srvctl status database -
d cdbrac

[oracle@ol7-122-rac1 ~]$
```

2. Connect to a database instance by using SQL*Plus with the system account. This is known as Oracle database authentication. After it is connected, query the `instance_name` column from the `v$instance` dynamic performance view.

   Note: Your instance names may vary from the ones displayed below:

```
[oracle@ol7-122-rac1 ~]$ sqlplus system@orcl

SQL*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 16:02:01
2014

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter password: ***** << Password is not displayed

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options

SQL> select instance_name from v$instance;


-----------------------
```

3. Use the SQL*Plus host command to temporarily exit SQL*Plus and return to the operating system prompt.

   Note: SQL*Plus is still running when this is performed. Repeat the previous step from the operating system prompt to establish a second SQL*Plus session and database instance connection. What instance name did you connect to?

```
SQL> !
[oracle@ol7-122-rac1 ~]$ sqlplus system@orcl

SQL*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 16:07:15
2014

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter password: ***** << Password is not displayed
Last Successful login time: Wed Sep 11 2014 16:02:32 +00:00

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options

SQL> select instance_name from v$instance;



-----------------------
```

4. Use the SQL*Plus host command to temporarily exit SQL*Plus and return to the operating system prompt. Note: SQL*Plus is still running when this is performed. Validate that you are still on your first node. Repeat the previous step from the operating system prompt to establish a third SQL*Plus session and database instance connection. What instance name did you connect to?

```
SQL> !
[oracle@ol7-122-rac1 ~]$ sqlplus system@orcl
SQL*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 16:07:15
2014

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter password: ***** << Password is not displayed
```

```
Last Successful login time: Wed Sep 11 2014 16:02:32 +00:00

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options

SQL> select instance_name from v$instance;



----------------------
```

5. Exit the SQL*Plus sessions that are currently executing on the first node.

```
SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release
12.1.0.2.0 - 64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options

[oracle@ol7-122-rac1 ~]$ exit
exit



SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release
12.1.0.2.0 - 64bit Production
With the Partitioning, Real Application Clusters, Automatic
Storage Management, OLAP,
Advanced Analytics and Real Application Testing options
[oracle@ol7-122-rac1 ~]$ exit
exit
```

Practice 4-3: Stopping a Complete ORACLE_HOME Component Stack

Overview

In this practice, you will use the `srvctl` utility to stop all resource components executing from a single Oracle home location.

1. Validate that the instances are running on each node of the cluster using the `ps` command.

```
[oracle@ol7-122-rac1 ~]$ ps -ef|grep -i pmon
grid      3529     1  0 06:45 ?        00:00:18 asm_pmon_+ASM1
oracle   15813     1  0 08:02 ?        00:00:20 ora_pmon_cdbrac3
grid     23591     1  0 06:45 ?        00:00:06 mdb_smon_-MGMTDB
oracle   24700 16483  0 16:25 pts/1    00:00:00 grep -i pmon

[oracle@ol7-122-rac1 ~]$ ssh ol7-122-rac2 ps -ef|grep -i pmon
grid      5973     1  0 07:45 ?        00:00:21 asm_pmon_+ASM2
oracle    7114     1  0 08:01 ?        00:00:24 ora_pmon_cdbrac1
```

2. Display the syntax usage help for the `srvctl status home` command.

```
[oracle@ol7-122-rac1 ~]$ srvctl status home -help

Displays the current state of of all resources for the Oracle
home.

Usage: srvctl status home -oraclehome <oracle_home> -statefile
<state_file> -node <node_name>
    -oraclehome <path>             Oracle home path
    -statefile <state_file>        Specify a file path for the
srvctl status home command to store the state of the resources
    -node <node_name>              Node name
    -help                          Print usage
[oracle@ol7-122-rac1 ~]$
```

3. Use the `srvctl status home` command to check the state of all resources running from the `/u01/app/oracle/product/12.1.0/dbhome_1` home location. Create the required state file in the `/tmp` directory with the file name `ol7-122-rac1_dbhome_state1.dmp`for the first node only.

```
[oracle@ol7-122-rac1 ~]$ srvctl status home -oraclehome
/u01/app/oracle/product/12.1.0/dbhome_1 -statefile
/tmp/ol7-122-rac1_dbhome_state1.dmp -node ol7-122-rac1

Database orcl is running on node ol7-
122-rac1
[oracle@ol7-122-rac1 ~]$
```

4. Display the syntax usage help for the `srvctl stop home` command.

```
[oracle@ol7-122-rac1 ~]$ srvctl stop home -help

Stops all Oracle clusterware resources that run from the Oracle
home.

Usage: srvctl stop home -oraclehome <oracle_home> -statefile
<state_file> -node <node_name> [-stopoption <stop_options>] [-
force]
    -oraclehome <path>             Oracle home path
    -statefile <state_file>        Specify a file path for the
srvctl stop home command to store the state of the resources
    -node <node_name>              Node name
    -stopoption <stop_options>     Stop options for the
database. Examples of shutdown options are NORMAL,
TRANSACTIONAL, IMMEDIATE, or ABORT.
    -force                         Force stop
    -help                          Print usage

[oracle@ol7-122-rac1 ~]$
```

5. Stop all resources executing from `/u01/app/oracle/product/12.1.0/dbhome_1`. Do not use the optional parameters identified by square brackets "`[]`" displayed in the syntax usage help.

```
[oracle@ol7-122-rac1 ~]$ srvctl stop home -oraclehome
/u01/app/oracle/product/12.1.0/dbhome_1 -node ol7-122-rac1 -
statefile
/tmp/ol7-122-rac1_dbhome_state2.dmp

[oracle@ol7-122-rac1 ~]$
```

6. Check the status of the database instances on each node.

```
[oracle@ol7-122-rac1 ~]$ srvctl status database -
d cdbrac
```

7. Start all resources for the `/u01/app/oracle/product/12.1.0/dbhome_1` home using the state file created by the `stop` command.

```
[oracle@ol7-122-rac1 ~]$ srvctl start home -oraclehome
/u01/app/oracle/product/12.1.0/dbhome_1 -node ol7-122-rac1 -
statefile
/tmp/ol7-122-rac1_dbhome_state2.dmp
[oracle@ol7-122-rac1 ~]$
```

8. Check the status of the database instances on each node.

```
[oracle@ol7-122-rac1 ~]$ srvctl status database -
d cdbrac

[oracle@ol7-122-rac1 ~]$
```

9. Close all terminal windows opened for this practice.