**Practices for Lesson 10: Oracle RAC Administration**

Lab 10 - Page 1

# 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.

Lab 10 - Page 2

# 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@host01 ~]$ **. oraenv**  ORACLE\_SID = [oracle] ? **orcl**  The Oracle base has been set to /u01/app/oracle [oracle@host01 ~]$$ |

1. 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@host01 ~]$ **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\_orcl\_3  oracle 19607 16483 0 15:24 pts/1 00:00:00 grep -i pmon |

1. Attempt to make a local connection to the orcl\_*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@host01 ~]$ **sqlplus / as sysdba**  SQL\*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 15:25:43  2014  Copyright (c) 1982, 2014, Oracle. All rights reserved. Connected to an idle instance.  SQL> exit  Disconnected [oracle@host01 ~]$ |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 3

1. 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@host01 ~]$ **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@host01 ~]$ |

1. 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@host01 ~]$ **env | grep ORA** ORACLE\_SID=orcl ORACLE\_BASE=/u01/app/oracle  ORACLE\_HOME=/u01/app/oracle/product/12.1.0/dbhome\_1  [oracle@host01 ~]$ |

1. Modify the ORACE\_SID environment variable to match the actual database instance name for the orcl database.

|  |
| --- |
| [oracle@host01 ~]$ **export ORACLE\_SID=orcl\_3**  [oracle@host01 ~]$ |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 4

1. 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@host01 ~]$ sqlplus / as sysdba  SQL\*Plus: Release 12.1.0.2.0 Production on Wed Sep 11 15:35:32  2014  Copyright (c) 1982, 2014, Oracle. All rights reserved.  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> |

1. 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$instance;**  INSTANCE\_NAME  orcl\_3 SQL> exit  Disconnected from Oracle Database 12c Enterprise Edition Release  12.1.0.2.0 - 64bit Production  With the Partitioning, Real Application Clusters, Automatic Storage Management, OLAP,  Advanced Analytics and Real Application Testing options  [oracle@host01 ~]$ |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 5

# 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@host01 ~]$ **srvctl status database -d orcl** Instance orcl\_1 is running on node host02 Instance orcl\_2 is running on node host03 Instance orcl\_3 is running on node host01  [oracle@host01 ~]$ |

1. 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@host01 ~]$ **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;**  INSTANCE\_NAME  orcl\_2 SQL> |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 6

1. 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@host01 ~]$ **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;**  INSTANCE\_NAME  orcl\_1 SQL> |

1. 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@host01 ~]$ **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*** |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 7

|  |
| --- |
| 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;**  INSTANCE\_NAME  orcl\_3 SQL> |

1. Exit the three 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@host01 ~]$ **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@host01 ~]$ 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@host01 ~]$ |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 8

# 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@host01 ~]$ **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\_orcl\_3  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@host01 ~]$ **ssh host02 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\_orcl\_1  [oracle@host01 ~]$ **ssh host03 ps -ef|grep -i pmon**  oracle 3034 1 0 13:49 ? 00:00:07 ora\_pmon\_orcl\_2  grid 3682 1 0 13:51 ? 00:00:06 asm\_pmon\_+ASM3  [oracle@host01 ~]$ |

1. Display the syntax usage help for the srvctl status home command.

|  |
| --- |
| [oracle@host01 ~]$ **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@host01 ~]$ |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 9

1. 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 host01\_dbhome\_state1.dmp for the first node only.

|  |
| --- |
| [oracle@host01 ~]$ **srvctl status home -oraclehome**  **/u01/app/oracle/product/12.1.0/dbhome\_1 -statefile**  **/tmp/host01\_dbhome\_state1.dmp -node host01**  Database orcl is running on node host01 [oracle@host01 ~]$ |

1. Display the syntax usage help for the srvctl stop home command.

|  |
| --- |
| [oracle@host01 ~]$ **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@host01 ~]$ |

1. 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@host01 ~]$ **srvctl stop home -oraclehome**  **/u01/app/oracle/product/12.1.0/dbhome\_1 -node host01 -statefile**  **/tmp/host01\_dbhome\_state2.dmp**  [oracle@host01 ~]$ |

Practices for Lesson 10: Oracle RAC Administration

Lab 10 - Page 10

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

|  |
| --- |
| [oracle@host01 ~]$ **srvctl status database -d orcl** Instance orcl\_1 is running on node host02 Instance orcl\_2 is running on node host03 Instance orcl\_3 is not running on node host01  [oracle@host01 ~]$ |

1. 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@host01 ~]$ **srvctl start home -oraclehome**  **/u01/app/oracle/product/12.1.0/dbhome\_1 -node host01 -statefile**  **/tmp/host01\_dbhome\_state2.dmp**  [oracle@host01 ~]$ |

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

|  |
| --- |
| [oracle@host01 ~]$ **srvctl status database -d orcl** Instance orcl\_1 is running on node host02 Instance orcl\_2 is running on node host03 Instance orcl\_3 is running on node host01  [oracle@host01 ~]$ |

1. Close all terminal windows opened for this practice.

Practices for Lesson 1: Oracle RAC Administration

Lab 10 - Page 11