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Oracle Database 18c: Administration Workshop

Activity Guide
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Practices for Lesson 1: Introduction

Chapter 1

Practices for Lesson 1

There are no practices for this lesson.

Practices for Lesson 2: Exploring Oracle Database Architecture

Chapter 2

Practices for Lesson 2: Overview

Practices Overview

In this practice, you review Oracle Database architecture concepts and answer questions to test your knowledge of the lesson topics.

Practice 2-1: Exploring the Oracle Database Architecture

Fill in the blanks with the correct answers.

1. The two main components of a basic Oracle Database system are:

_____ and _____

Hint: See page 2-3

2. An instance consists of _____ and _____ processes.

Hint: See page 2-3

3. A session is a connection between the _____ process and the _____ process.

Hint: See page 2-5

4. Name the main components of the SGA:

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Hint: See page 2-6

5. List six of the many background processes an Oracle Database instance might have:

- _____
- _____
- _____
- _____
- _____
- _____

Hint: See page 2-26

6. The _____ process writes dirty buffers to data files.

Hint: See page 2-28

7. The _____ process writes redo entries to online redo log files.

Hint: See page 2-30

8. The primary files associated with an Oracle database are:

- _____
- _____
- _____

Additional important files are:

- _____
- _____
- _____
- _____
- _____

Hint: See page 2-38

9. The logical storage structures of an Oracle database are:

- _____
- _____
- _____
- _____
- _____

Hint: See page 2-40

10. The _____ process copies redo log files to an archive destination.

Hint: See page 2-37

11. The _____ contains data and control information for a server or background process.

Hint: See page 2-15

12. The logical tablespace structure is associated with the physical _____ files on disk.

Hint: See page 2-40

13. LGWR writes when:

- _____
- _____
- _____
- _____

Hint: See page 2-30

14. State whether the following statements are true or false.

- a. The SGA includes the database buffer cache and redo log buffer. _____
- b. Each server process has its own PGA. _____
- c. The buffers in the database buffer cache are organized in two lists: the most recently used list and the least recently used (LRU) list. _____
- d. User processes run the application or tool that connects to an Oracle instance. _____
- e. Oracle Database processes include server processes and background processes. _____
- f. Checkpoints are recorded in log file headers. _____

Hint: See pages 2-6, 2-10, 2-15, 2-24, 2-26, 2-32

Practices for Lesson 3: Oracle Database Management Tools

Chapter 3

Practices for Lesson 3: Overview

Practices Overview

Background: The Oracle software has been installed and a database has been created.

Practice 3-1: Registering the orcl Database in Oracle Enterprise Manager Cloud Control

In this practice, you use Oracle Enterprise Manager Cloud Control (Cloud Control) to register the `orcl` database.

1. Invoke Cloud Control and log in as the `SYSMAN` user. Which port number does this database use?

Answer: Cloud Control uses port 7802 by default.

- a. Click the Firefox browser icon on the top toolbar to launch Firefox.
- b. Enter the URL `https://localhost:7802/em`. The format for this URL is `https://<machine_name>:<port_number>/em`.

Note: The first time you connect, you get an “Untrusted Connection” message (or something similar depending on the browser and version) and an Alert window may appear. To get past this, you add an exception and accept the certificate.

The screenshot shows a Firefox browser alert titled "This Connection is Untrusted". It features a yellow warning icon with a person holding a shield. The text explains that Firefox can't confirm the connection is secure. It asks if you usually connect to this site without problems and suggests someone might be impersonating it. Two buttons are shown: "Get me out of here!" and "I Understand the Risks". Below the alert, there's a section titled "Technical Details" with a yellow triangle icon.

- i) Click **I understand the Risks**.
- ii) Click **Add Exception**.

▼ I Understand the Risks

If you understand what's going on, you can tell Firefox to start trusting this site's identification. **Even if you trust the site, this error could mean that someone is tampering with your connection.**

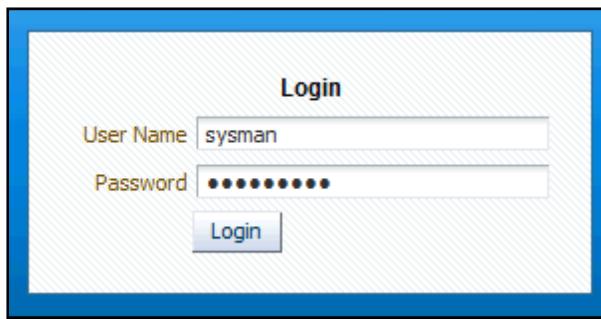
Don't add an exception unless you know there's a good reason why this site doesn't use trusted identification.

[Add Exception...](#)

- iii) Ensure that the option to permanently store this exception is selected and then click **Confirm Security Exception**.



- c. In the Cloud Control Login box, enter **sysman** in the User Name field, **oracle_4U** in the Password field, and then click **Login**.



2. The Accessibility Preference page is displayed. Select the appropriate preference and click “Save and Continue.”

The screenshot shows the 'Accessibility Preference' page of Oracle Enterprise Manager Cloud Control 12c. At the top, it says 'Your accessibility preferences are presented because this is your first login. You can set these now, or at anytime by using Username menu.' Below this are several checkboxes:

- I use a screen reader (Accessibility-specific constructs are added to improve behavior with a screen reader)
Note: For screen reader support, additional configuration is required by your system administrator. See [Help](#) for more information.
- I use high contrast settings
- I use large fonts
- Show me the Accessibility Preference options after I log in

At the bottom are two buttons: 'Help' on the left, and 'Save and Continue' and 'I'll deal with this later' on the right.

3. At the first login to Cloud Control, you will be asked to accept the license agreement. Click **I Accept**.
4. Also, at the first the login to Cloud Control, you will be asked to select a Home page from several pages. Click the radio button below the **Summary** view. Note that this is the assumed starting point for any subsequent logins.
5. Register your local database named `orc1` with Cloud Control.
 - a. Expand **Targets** and select **Databases**.
 - b. Select **Search List**.
 - c. On the Databases page, note that there are no databases. Expand **Add** and click **Oracle Database**.

The screenshot shows the 'Databases' page of Oracle Enterprise Manager Cloud Control 12c. The top navigation bar includes links for Enterprise, Targets, Favorites, and History. Below the navigation is a search bar with a 'Find Name' input field and a 'Search' button. Underneath is a toolbar with buttons for View, Add (highlighted with a red box), Remove, and Configure. A table below shows a single row with the column 'Name' and the text 'No Databases found'.

- d. On the “Database Discovery: Search Criteria” page, use the Search icon to select your host target on the Search Targets page. Click **Next**.

- e. In the Databases section, select the `orcl` database.
- f. Enter `oracle_4U` in the Monitor Password field for the `orcl` database. Click **Test Connection**.

View ▾	Specify Common Monitoring Credentials	Configure	Monitoring Credentials			Target Group
			Target Name	Monitor Username	Monitor Password	
<input type="checkbox"/>	orcl	dbsnmp	*****	Normal		
<input type="checkbox"/>	em12rep	dbsnmp		Normal		

- g. You receive a confirmation message that the connection test was successful. Click **OK**.
- h. Click **Next**.
- i. Click **Save**.
- j. On the Target Saving Completed Successfully page, click **Close**.
- k. The `orcl` database appears on the Databases page.

Name	Type	Status	Target Version	Incidents	Average Compliance Score	Member Status Summary
orcl	Database Instance			0 0 0	n/a	0 0 0 0

- l. Return to the Enterprise Summary page by expanding **Enterprise** and selecting **Summary**.

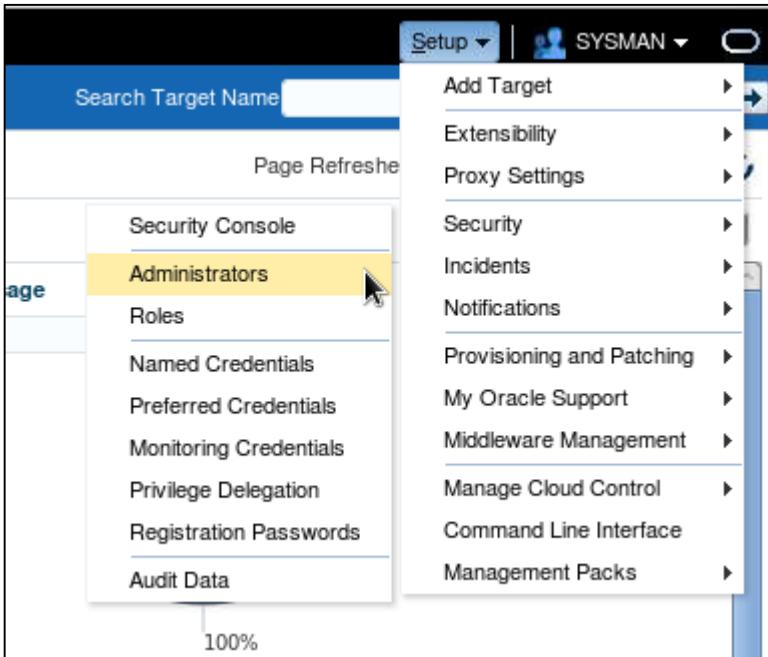
Practice 3-2: Creating an Administrative User

Overview

In this practice, you create an administrative user in Oracle Enterprise Manager Cloud Control. This user has an arbitrary name, and it is not related to the name of any database user. It is a recommended best practice to create and use a separate account for each administration user.

Tasks

1. If you are not logged in to Enterprise Manager Cloud Control, launch Enterprise Manager Cloud Control and log in as the **SYSMAN** user.
2. On the top-right corner of the page, click **Setup > Security > Administrators**.



3. Click **Create** to add the ADMIN user to the Administrators list. This will enable the ADMIN user to perform management tasks by using Enterprise Manager.

Administrators

Administrators are Enterprise Manager users who can login to Enterprise Manager to perform management tasks. The list depends on the privileges and roles assigned to the administrators.

Select	Name	Access	Authentication Type
<input checked="" type="radio"/>	CLOUD_SWLIB_USER	Administrator	Repository
<input type="radio"/>	SYSMAN	Repository Owner	Repository

4. Enter **admin** in the Name field and **oracle_4U** in the Password and Confirm Password fields. Select **Super Administrator**, and then click **Review**.

Create Administrator: Properties

* Name	admin
* Password	*****
* Confirm Password	*****
Password Profile	DEFAULT <input type="button" value="View"/>
You can create additional password profile using database admin pages	
<input type="checkbox"/> Prevent password change	
When checked, administrator is not allowed to change his/her own password.	
<input type="checkbox"/> Expire password now	
When selected, administrator account will be created with expired state. On next logon, administrator will be prompted to change password.	
E-mail Address	Specify one or more e-mail addresses separated by a comma or space. If you are creating multiple accounts, enter the e-mail address for each account on a new line.
Contact	
Location	
Department	
Cost Center	
Line of Business	
Description	
<input checked="" type="checkbox"/> Super Administrator	

5. On the Create Administrator admin: Review page, click **Finish**.
6. A Confirmation message is displayed.

The screenshot shows the Oracle Enterprise Manager Cloud Control 12c interface. At the top, there's a navigation bar with links for Enterprise, Targets, Favorites, and History. Below the navigation bar, the title "Security" is displayed. A yellow box contains a "Confirmation" message stating "Administrator ADMIN was created successfully". Below this, under the heading "Administrators", there is a table listing three users:

Select	Name	Access	Authentication Type
<input checked="" type="radio"/>	ADMIN	Super Administrator	Repository
<input type="radio"/>	CLOUD_SWLIB_USER	Administrator	Repository
<input type="radio"/>	SYSMAN	Repository Owner	Repository

7. Expand SYSMAN on the top-right corner and click **Log Out**.
8. Enter **ADMIN** in the User Name field and **oracle_4u** in the Password field. Click **Login**.
9. The Accessibility Preference page is displayed. Select the appropriate preference and click "Save and Continue."
10. The Select Enterprise Manager Home page is displayed. Click the radio button below the **Summary** view.
11. The Enterprise Summary page is displayed. Expand ADMIN and click **Log Out** to exit from Enterprise Manager Cloud Control.

Practice 3-3: Logging In to Oracle Enterprise Manager Database Express

Overview

In this practice, you create a new user and log in to Oracle Enterprise Manager Database Express (EM Express).

Tasks

- It is good practice to create a user separate from `SYS` and `SYSTEM` to perform database administration tasks. Each DBA in your organization should have his or her own privileged account to aid in auditing. Create a privileged user named `DBA1` and grant this user the `CONNECT`, `DBA`, and `SYSDBA` roles by using a script named `lab_03_03_01.sh`. You will examine this script later after discussing user security.

Open a terminal window. Execute the `$LABS/P3/lab_03_03_01.sh` script.

```
$ $LABS/P3/lab_03_03_01.sh
lab_03_03_01 completed. You may now login as:
dba1/oracle_4U
```

- Invoke EM Express and log in as the `DBA1` user. Which port number does this database use? Because each database on the same machine must use a different port, you can discover the port numbers being used by executing the following PL/SQL block.

```
DECLARE
    port NUMBER;
Begin
    port := dbms_xdb_config.gethttpport;
    dbms_output.put_line('DB user port for EM
Express:' || to_char(PORT));
END;
```

- In the Linux command window, set your environment to the `orcl` database by using `oraenv`.

```
$ . oraenv
ORACLE_SID = [oracle] ? orcl
The Oracle base for
ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1 is
/u01/app/oracle
$
```

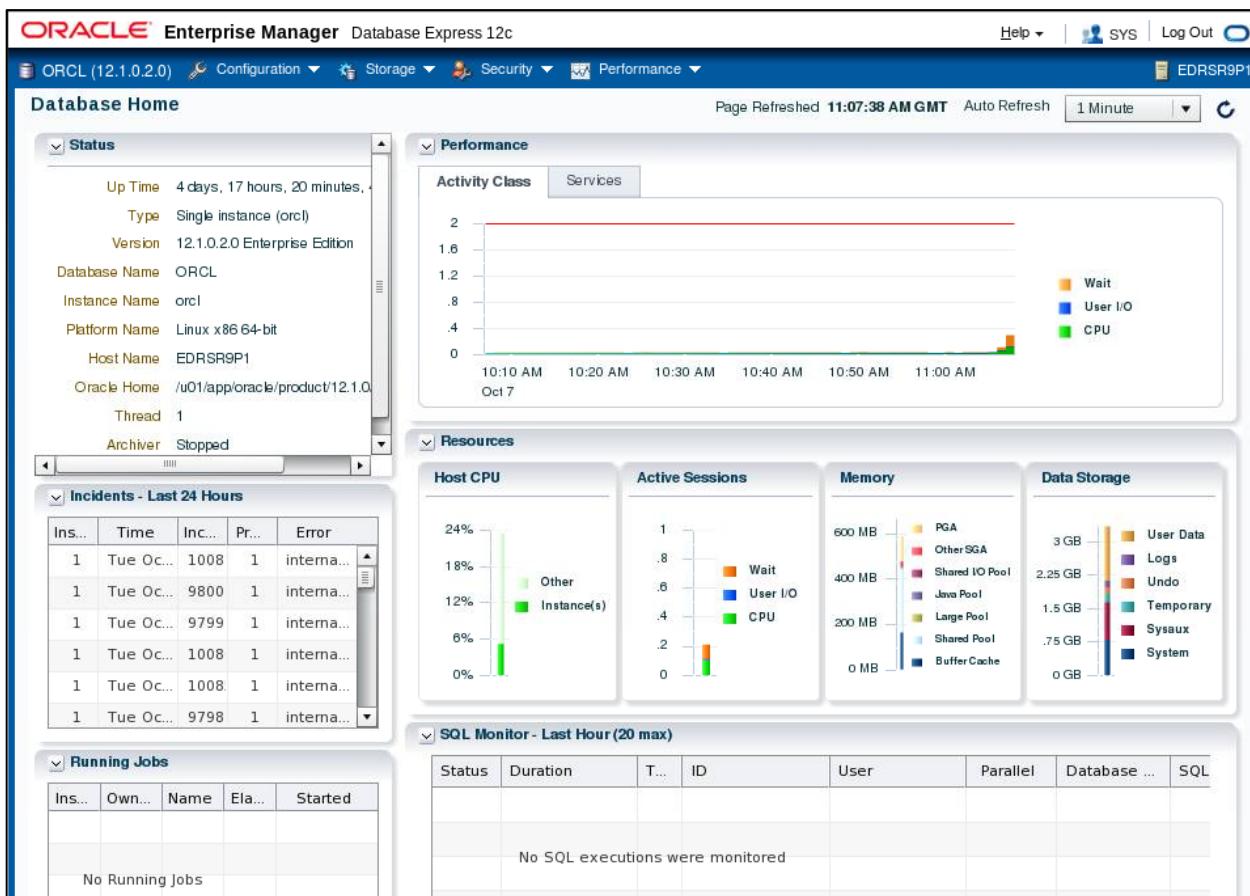
- b. Log in to SQL*Plus as the DBA1 user and execute the \$LABS/P3/lab_03_03_02.sql script, which contains the PL/SQL block shown above.

```
$ sqlplus dba1/oracle_4U as sysdba
...
SQL> @$LABS/P3/lab_03_03_02
DB user port for EM Express:5500

PL/SQL procedure successfully completed.
```

Note: 5500 is the Enterprise Manager Database Express port in this database.

- c. Click the **Firefox Web Browser** icon on the top toolbar to open your web browser as the oracle user.
 - d. Enter the URL below with the port number you found by executing the PL/SQL block. It has the following format:
<http://localhost:portnumber/em>
3. On the Oracle Enterprise Manager Database Express login page, enter **DBA1** as the User Name, enter **oracle_4U** as the Password, and select “**as sysdba**.” Click **Login**.
4. The Database Home page is displayed.



5. Review the data on the Database Home page, and then click **Log Out** on the top-right corner.
6. Log out of SQL*Plus.

Practices for Lesson 4: Managing the Database Instance

Chapter 4

Practices for Lesson 4: Overview

Practices Overview

Background: The Oracle software has been installed and a database has been created. You want to ensure that you can start and stop the database instance and see the application data.