# Practices for Lesson 7: Using Oracle-Supplied Packages in Application Development

**Chapter 7**

# Practices for Lesson 7: Overview

## Overview

In this practice, you use the UTL_FILE package to generate a text file report of employees in each department.

**Note:**

1. Before starting this practice, execute
   /home/oracle/labs/plpu/code_ex/cleanup_scripts/cleanup_07.sql
   script.
2. If you missed a step in a practice, please run the appropriate solution script for that practice step before proceeding to the next step or the next practice.

# Practice 7-1: Using the `UTL_FILE` Package

## Overview

In this practice, you use the `UTL_FILE` package to generate a text file report of employees in each department. You first create and execute a procedure called `EMPLOYEE_REPORT` that generates an employee report in a file in the operating system, using the `UTL_FILE` package. The report should generate a list of employees who have exceeded the average salary of their departments. Finally, you view the generated output text file.

**Note:** Execute `cleanup_07.sql script` from `/home/oracle/labs/plpu/code_ex/cleanup_scripts/` before performing the following tasks.

## Task

1. Create a procedure called `EMPLOYEE_REPORT` that generates an employee report in a file in the operating system, using the `UTL_FILE` package. The report should generate a list of employees who have exceeded the average salary of their departments.

   a. Your program should accept two parameters. The first parameter is the output directory. The second parameter is the name of the text file that is written.

      **Note:** Use the directory location value `UTL_FILE`. Add an exception-handling section to handle errors that may be encountered when using the `UTL_FILE` package.

   b. Click the Run Script icon (or press F5) on the SQL Worksheet toolbar to create and compile the procedure.

2. Invoke the procedure using the following two arguments:

   a. Use `REPORTS_DIR` as the alias for the directory object as the first parameter.

   b. Use `sal_rpt71.txt` as the second parameter.

3. View the generated output text file as follows:

   a. Double-click the **Terminal** icon on your desktop. The **Terminal** window is displayed.

   b. At the **$** prompt, change to the **/home/oracle/labs/plpu/reports** directory that contains the generated output file, `sal_rpt71.txt` using the `cd` command.

      **Note:** You can use the `pwd` command to list the current working directory.

   c. List the contents of the current directory using the `ls` command.

   d. Open the transferred the `sal_rpt71.txt`, file using `gedit` or an editor of your choice.

## Solution 7-1: Using the `UTL_FILE` Package

In this practice, you use the `UTL_FILE` package to generate a text file report of employees in each department. You first create and execute a procedure called `EMPLOYEE_REPORT` that generates an employee report in a file in the operating system, using the `UTL_FILE` package. The report should generate a list of employees who have exceeded the average salary of their departments. Finally, you view the generated output text file.

1. Create a procedure called `EMPLOYEE_REPORT` that generates an employee report in a file in the operating system, using the `UTL_FILE` package. The report should generate a list of employees who have exceeded the average salary of their departments.

   a. Your program should accept two parameters. The first parameter is the output directory. The second parameter is the name of the text file that is written.

   **Note:** Use the directory location value `UTL_FILE`. Add an exception-handling section to handle errors that may be encountered when using the `UTL_FILE` package.

   **Open the file in the `/home/oracle/labs/plpu/solns/sol_07.sql` script. Uncomment and select the code under Task 1.**

```
-- Verify with your instructor that the database initSID.ora
-- file has the directory path you are going to use with this --
procedure.
-- For example, there should be an entry such as:
-- UTL_FILE_DIR = /home1/teachX/UTL_FILE in your initSID.ora
-- (or the SPFILE)
-- HOWEVER: The course has a directory alias provided called
-- "REPORTS_DIR" that is associated with an appropriate
-- directory. Use the directory alias name in quotes for the
-- first parameter to create a file in the appropriate
-- directory.

CREATE OR REPLACE PROCEDURE employee_report(
  p_dir IN VARCHAR2, p_filename IN VARCHAR2) IS
  f UTL_FILE.FILE_TYPE;
  CURSOR cur_avg IS
    SELECT last_name, department_id, salary
    FROM employees outer
    WHERE salary > (SELECT AVG(salary)
                    FROM  employees inner
                    Where department_id = outer.department_id)
    ORDER BY department_id;
BEGIN
  f := UTL_FILE.FOPEN(p_dir, p_filename,'W');
```

```
     UTL_FILE.PUT_LINE(f, 'Employees who earn more than average
       salary: ');
     UTL_FILE.PUT_LINE(f, 'REPORT GENERATED ON ' ||SYSDATE);
     UTL_FILE.NEW_LINE(f);
     FOR emp IN cur_avg
     LOOP

       UTL_FILE.PUT_LINE(f,
       RPAD(emp.last_name, 30) || ' ' ||
       LPAD(NVL(TO_CHAR(emp.department_id,'9999'),'-'), 5) || ' '
||
       LPAD(TO_CHAR(emp.salary, '$99,999.00'), 12));
     END LOOP;
     UTL_FILE.NEW_LINE(f);
     UTL_FILE.PUT_LINE(f, '*** END OF REPORT ***');
     UTL_FILE.FCLOSE(f);
   END employee_report;
   /
```

b.  Click the Run Script icon (or press F5) on the SQL Worksheet toolbar to create and
    compile the procedure.
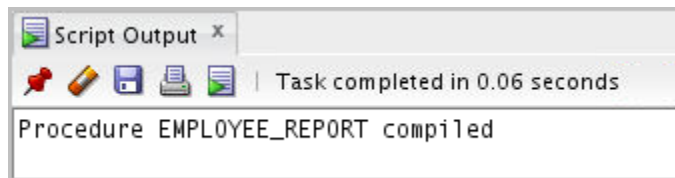


2.  Invoke the procedure using the following as arguments:

a.  Use REPORTS_DIR as the alias for the directory object as the first parameter.

b.  Use sal_rpt71.txt as the second parameter.

    **Uncomment and select the code under Task 2. Click the Run Script icon (or
    press F5) on the SQL Worksheet toolbar to execute the procedure. The result is
    shown below. Ensure that the external file and the database are on the same PC.**

    ```
    -- For example, if you are student ora61, use 61 as a prefix

    EXECUTE employee_report('REPORTS_DIR','sal_rpt71.txt')
    ```
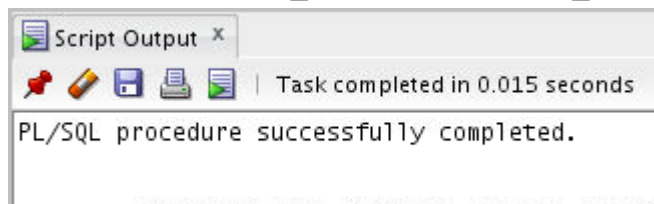
3. View the generated output text file as follows:
   a. Double-click the **Terminal** icon on your desktop. The **Terminal** window is displayed.
   b. At the **$** prompt, change to the **/home/oracle/labs/plpu/reports** directory that contains the generated output file, `sal_rpt61.txt` using the `cd` command as follows:

```
File  Edit  View  Search  Terminal  Help
[oracle@edcdr31p1 Desktop]$ cd /home/oracle/labs/plpu/reports
[oracle@edcdr31p1 reports]$ pwd
/home/oracle/labs/plpu/reports
[oracle@edcdr31p1 reports]$
```

**Note:** You can use the `pwd` command to list the current working directory as shown in the screenshot above.

   c. List the contents of the current directory using the `ls` command as follows:

```
oracle@edcdr31p1:~/labs/plpu/reports                    _ □
File  Edit  View  Search  Terminal  Help
[oracle@edcdr31p1 Desktop]$ cd /home/oracle/labs/plpu/reports
[oracle@edcdr31p1 reports]$ pwd
/home/oracle/labs/plpu/reports
[oracle@edcdr31p1 reports]$ ls
instructor.txt   salreport2.txt   sal_rpt71.txt
[oracle@edcdr31p1 reports]$
```

**Note the generated output file, `sal_rpt61.txt`.**

Open the transferred `sal_rpt61.txt` file by using `gedit` or an editor of your choice. The report is displayed as follows:

```
oracle@edcdr31p1:~/labs/plpu/reports                    _ □
File  Edit  View  Search  Terminal  Help
[oracle@edcdr31p1 Desktop]$ cd /home/oracle/labs/plpu/reports
[oracle@edcdr31p1 reports]$ pwd
/home/oracle/labs/plpu/reports
[oracle@edcdr31p1 reports]$ ls
instructor.txt   salreport2.txt   sal_rpt71.txt
[oracle@edcdr31p1 reports]$ gedit sal_rpt71.txt
```

```
Employees who earn more than average salary:
REPORT GENERATED ON 17-OCT-16

Hartstein            20      $13,000.00
Raphaely             30      $11,000.00
Rajs                 50       $3,500.00
Ladwig               50       $3,600.00
Dilly                50       $3,600.00
Chung                50       $3,800.00
Everett              50       $3,900.00
Bell                 50       $4,000.00
Bull                 50       $4,100.00
Sarchand             50       $4,200.00
Mourgos              50       $5,800.00
Vollman              50       $6,500.00
Kaufling             50       $7,900.00
Weiss                50       $8,000.00
Fripp                50       $8,200.00
Ernst                60       $6,000.00
Hunold               60       $9,000.00
Taylor               80       $8,600.00
Hutton               80       $8,800.00
Hall                 80       $9,000.00
McEwen               80       $9,000.00
Bernstein            80       $9,500.00
Sully                80       $9,500.00
Greene               80       $9,500.00
Fox                  80       $9,600.00
Tucker               80      $10,000.00
King                 80      $10,000.00
Bloom                80      $10,000.00
Zlotkey              80      $10,500.00
Vishney              80      $10,500.00
Cambrault            80      $11,000.00
Abel                 80      $11,000.00
Ozer                 80      $11,500.00
Errazuriz            80      $12,000.00
Partners             80      $13,500.00
Russell              80      $14,000.00
King                 90      $24,000.00
Faviet              100       $9,000.00
Greenberg           100      $13,208.80
Higgins             110      $12,008.00

*** END OF REPORT ***
```

**Note:** The output may slightly vary based on the data in the employees table.