

Objectives

After completing this lesson, you should be able to do the following:

- Describe packages and list their possible components
- Create a package to group together related variables, cursors, constants, exceptions, procedures, and functions
- Make a package construct either public or private
- Invoke a package construct







<Course name> <Lesson number>-

Developing a Package

- Saving the text of the CREATE PACKAGE statement in two different text files facilitates later modifications to the package.
- A package specification can exist without a package body, but a package body cannot exist without a package specification.
- If you have incorporated a stand-alone procedure into a package, you should drop your stand-alone procedure.

Creating the Package Specification

Syntax

- CREATE [OR REPLACE] PACKAGE package_name IS|AS
- public type and item declarations subprogram specifications END package_name;



Creating a Package Specification: Example

SQL> CREATE OR REPLACE PACKAGE comm_package IS 2 g_comm NUMBER := 10; -- initialized to 10

- 3 PROCEDURE reset_comm
- 4 (v_comm IN NUMBER);
- 5 END comm_package;
- 6 /





SQL>	CREATE OR REPLACE PACKAGE BODY comm_package
2	IS
3	FUNCTION validate_comm
4	(v_comm IN NUMBER)
5	RETURN BOOLEAN
6	IS
7	v_max_comm NUMBER;
8	BEGIN
9	SELECT max(comm)
10	INTO v_max_comm
11	FROM emp;
12	IF v_comm > v_max_comm
13	THEN RETURN(FALSE);
14	ELSE RETURN(TRUE);
15	END IF;
16	END validate comm;

Creating a Package Body: Example

```
17
18
      PROCEDURE reset_comm
       (v_comm IN NUMBER)
      IS
19
      BEGIN
20
       IF validate_comm(v_comm)
21
       THEN g_comm:=v_comm; --reset global variable
22
23
       ELSE
          RAISE APPLICATION ERROR
24
25
                (-20210,'Invalid commission');
26
       END IF:
27
     END reset_comm;
28 END comm_package;
29
   1
```





SQL>	CREATE OR REPLAC	E PACKAGE	global_v	ars	IS
2	mile_2_kilo	CONSTANT	NUMBER	:=	1.6093;
3	kilo_2_mile	CONSTANT	NUMBER	:=	0.6214;
4	yard_2_meter	CONSTANT	NUMBER	:=	0.9144;
5	meter_2_yard	CONSTANT	NUMBER	:=	1.0936;
6	END global vars;				
7	/				
SQL>	EXECUTE DBMS_OUT	PUT.PUT_LI	NE -		
> ('20 miles =' 20*	global_va	rs.mile_	2_ki	.lo ' km
20 m	iles =32.186 km				
	OT. procedure succ	essfully c	ompleted		





Developing Packages: Guidelines

- · Keep packages as general as possible.
- Define the package specification before the body.
- The package specification should only contain constructs that you want to be public.
- The package specification should contain as few constructs as possible.

Advantages of Packages

- Modularity: Encapsulate related constructs.
 Easier application design: Code and compile
- specification and body separately.
- Information hiding:
 - Private constructs are hidden and inaccessible.
 - All coding is hidden in the body.

Advantages of Packages

- Added functionality: Persistency of variables and cursors
- Better performance:
 - Entire package loaded into memory when the package is first referenced
 - Only one copy in memory for all users
 - Dependency hierarchy simplified
- Overloading: Multiple subprograms of the same name

Summary

- In this lesson, you should have learned how to:
- Improve organization, management, security, and performance
- Group related procedures and functions together
- Change a package body without affecting a package specification
- Grant security access to the entire package

Summary

- Hide the source code from users
- Load the entire package into memory on the first call
- Reduce disk access for subsequent calls
- · Provide identifiers for the user session

<Course name> <Lesson number>-

Summary

Command	Task
CREATE [OR REPLACE] PACKAGE	Create (or modify) an existing package specification
CREATE [OR REPLACE] PACKAGE BODY	Create (or modify) an existing package body
DROP PACKAGE	Remove both the package specification and the package body
DROP PACKAGE BODY	Remove the package body only

This document was created with Win2PDF available at http://www.daneprairie.com. The unregistered version of Win2PDF is for evaluation or non-commercial use only.