10

PL/SQL

Objectives

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

- **Identify PL/SQL objects**
- **Describe triggers and triggering events**
- **Identify configuration options that affect PL/SQL performance**

ORACLE

PL/SQL

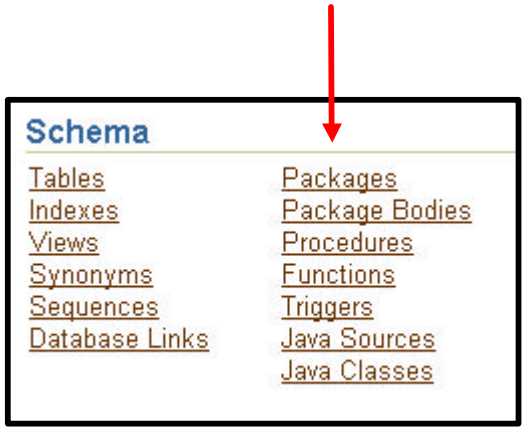
Procedural Language/Structured Query Language (PL/SQL) is a fourth generation (4GL) programming language. PL/SQL provides:

- **Procedural extensions to SQL**
- **Portability across platforms and products**
- **Support for object-oriented programming**

Administering PL/SQL Objects

Database administrators should be able to:

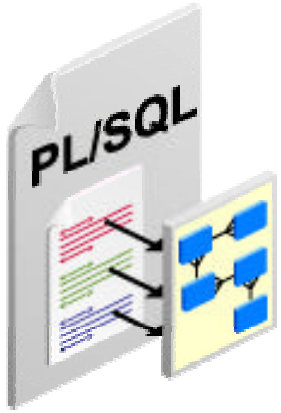
- **Identify problem PL/SQL objects**
- **Recommend appropriate use of PL/SQL**
- **Load PL/SQL objects into the database**
- **Assist PL/SQL developers in troubleshooting**



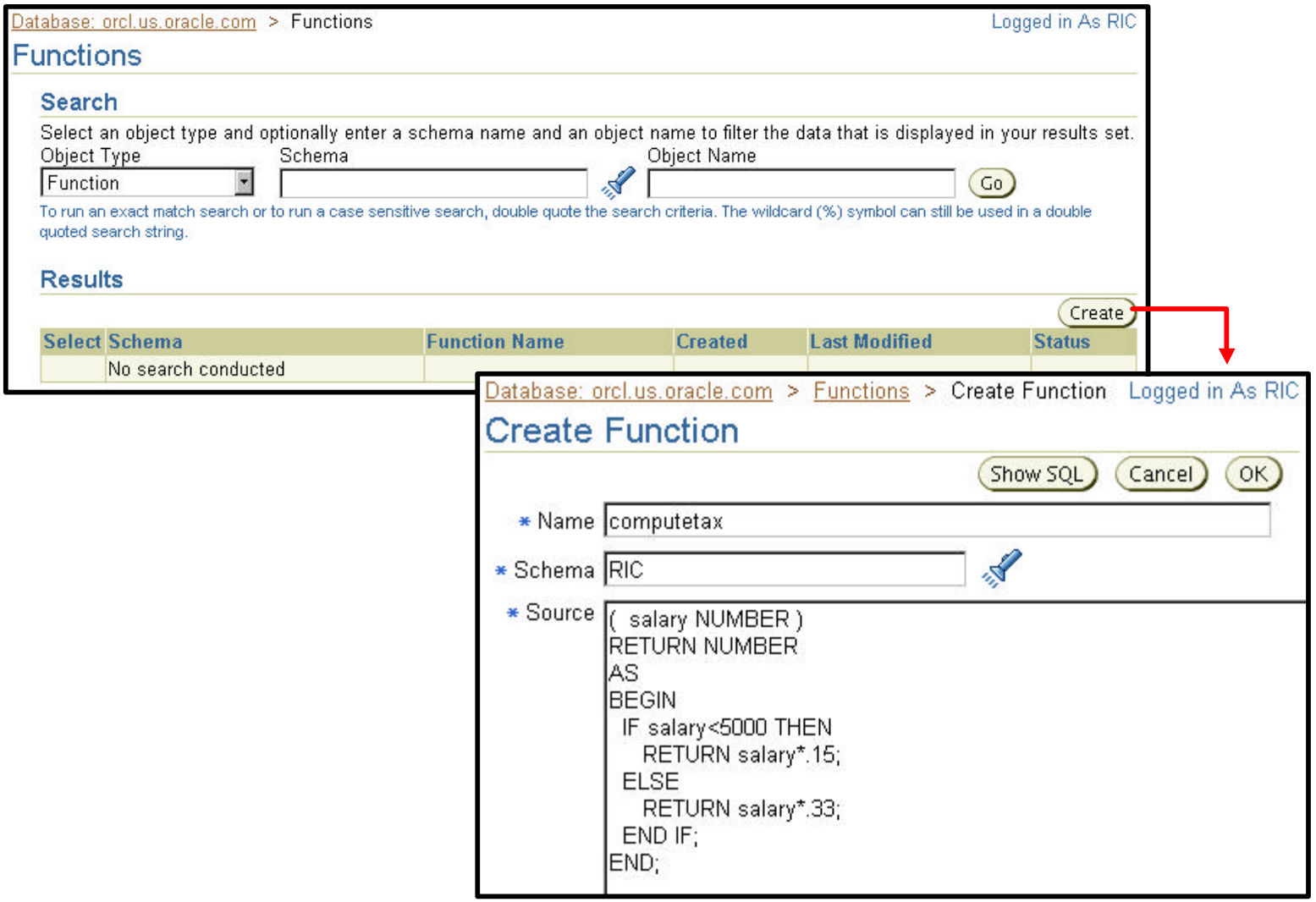
PL/SQL Objects

There are many types of PL/SQL database objects:

- **Package**
- **Package body**
- **Type body**
- **Procedure**
- **Function**
- **Trigger**



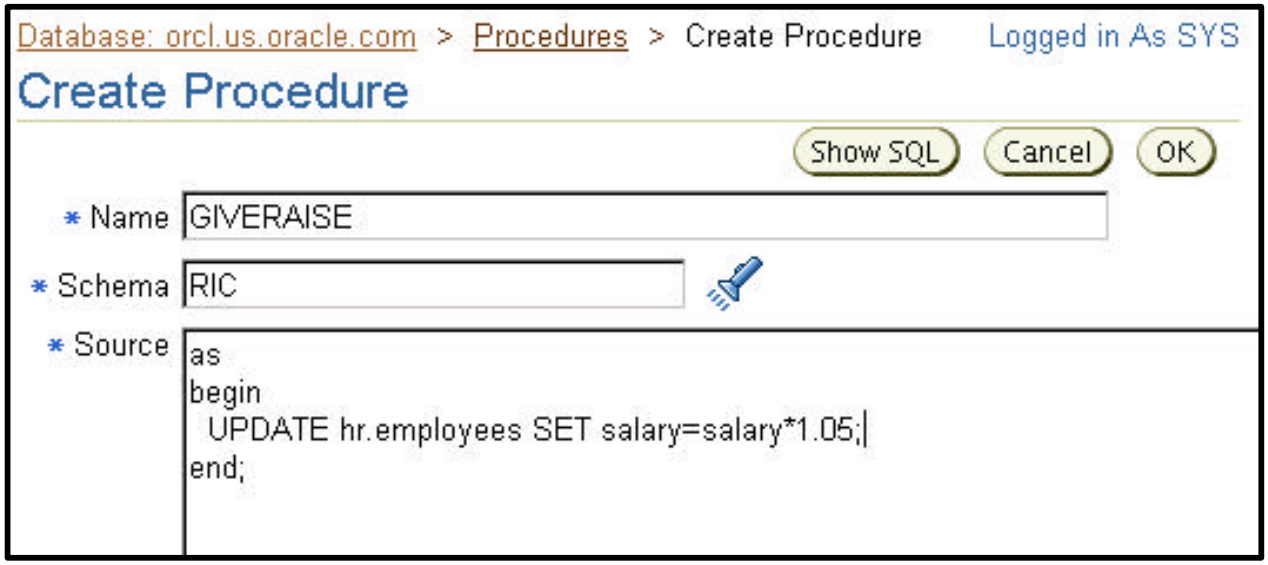
Functions



Procedures

Procedures are used to perform a specific action.
Procedures:

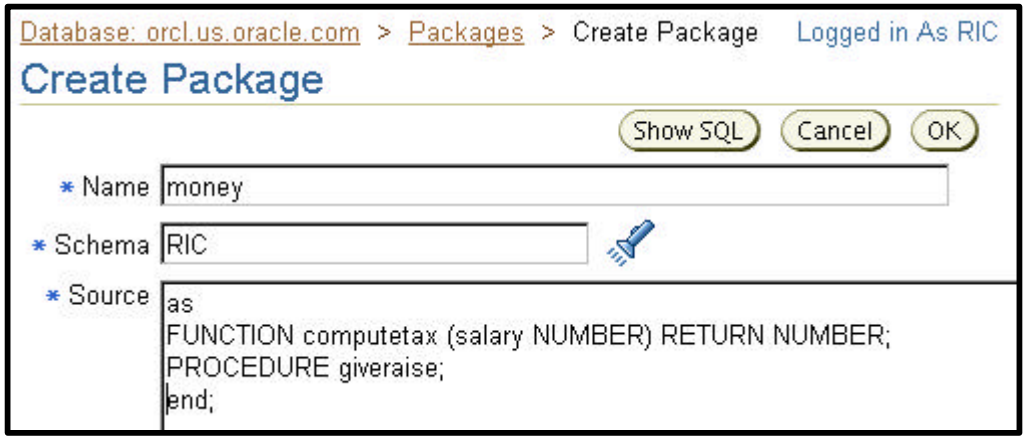
- **Transfer values in and out through an argument list**
- **Are called with the CALL command**

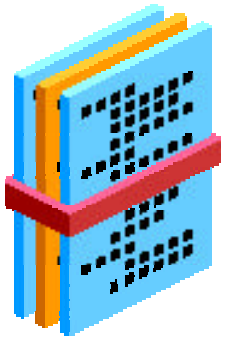


Packages

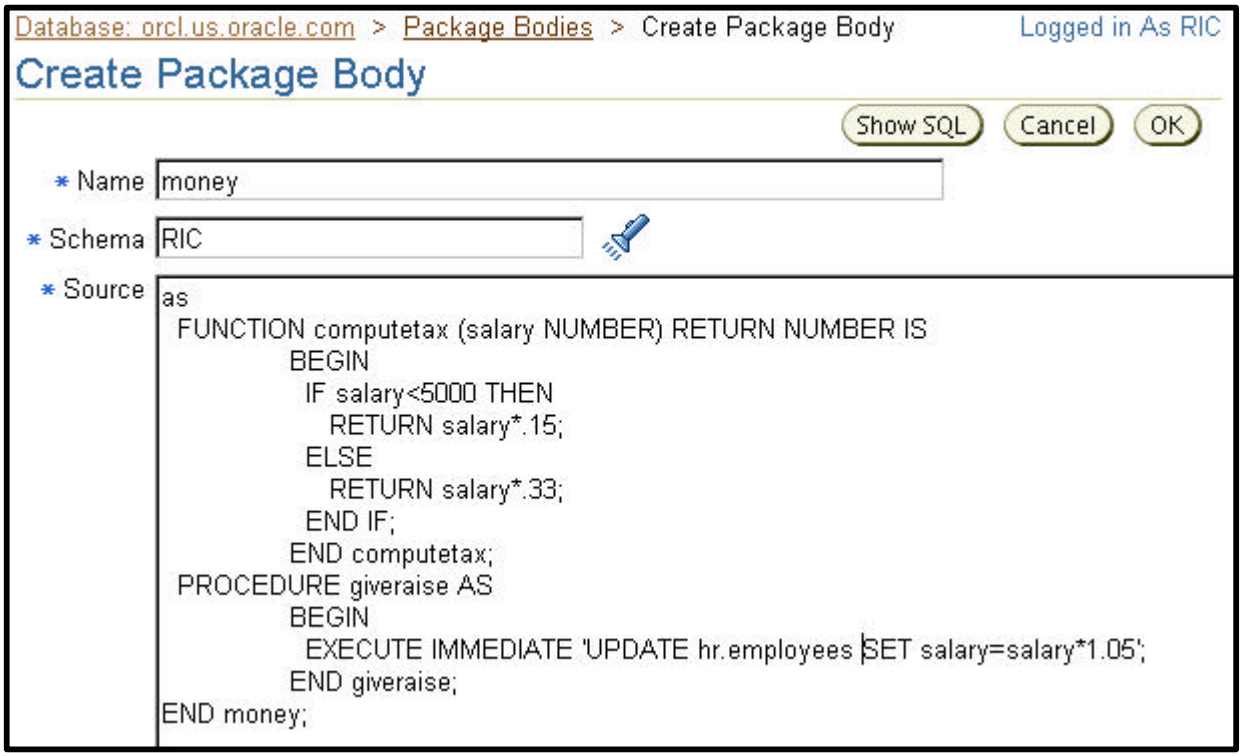
Packages are collections of functions and procedures. Each package should consist of two objects:

- **Package specification**
- **Package body**





Package Body



Built-In Packages

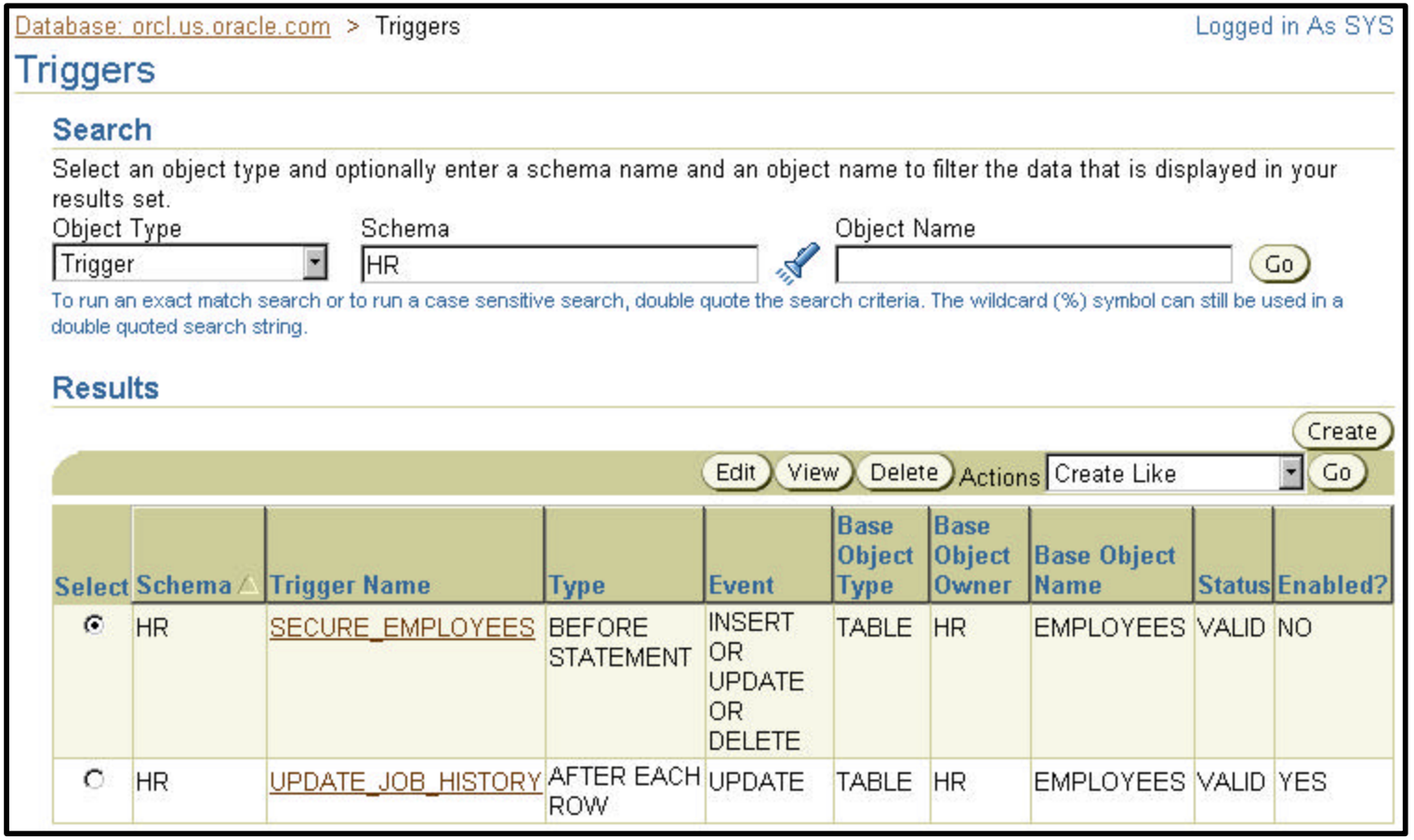
Oracle Database 10*g* comes with over 350 built-in PL/SQL packages providing:

- **Administration and maintenance utilities**
- **Extended functionality**

Use the DESCRIBE command to view subprograms

```
SQL> DESCRIBE dbms_stats
PROCEDURE ALTER_DATABASE_TAB_MONITORING
 Argument Name   Type    In/Out   Default?
 --------------- ------- ------   --------
 MONITORING      BOOLEAN     IN   DEFAULT
 SYSOBJS         BOOLEAN     IN   DEFAULT
...
```

Triggers

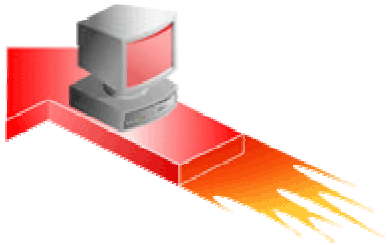


PL/SQL Configuration Options

There are several PL/SQL compiler settings that control PL/SQL performance.

For fastest performance set:

- **`PLSQL_CODE_TYPE=NATIVE`**
- **`PLSQL_DEBUG=FALSE`**
- **`PLSQL_OPTIMIZE_MODE=2`**
- **`PLSQL_WARNING=DISABLE:ALL`**



Summary

In this lesson you should have learned how to:

- **Identify PL/SQL objects**
- **Describe triggers and triggering events**
- **Identify configuration options that affect PL/SQL performance**

Practice Overview

There is no practice exercise for this lesson.

You will be managing and creating PL/SQL objects several times during the rest of this course.