

# ORACLE 12c PL/SQL PROGRAMMING

## INFORMACION

### FORMATO

Presencial

En Sitio

A partir de 3 participantes

### DURACIÓN:

80 Horas

10 días

Lunes a Viernes

### DIRIGIDO A

Usuarios de servidor de Bases de Datos Oracle que requieren realizar tareas administrativas

### REQUISITOS:

xxxxxxxxxxxxxxxxxxx

### MATERIAL:

Manual Oficial

DVD de la distribución

Linux más reciente

### DOCUMENTO

Diploma expedido por

PLCT S.A. DE C.V.

## DESCRIPCION GENERAL

Curso orientado a usuarios de servidor de bases de datos Oracle que requiere aprender y dominar los procesos de instalación, configuración, puesta a punto, respaldo y recuperación de cluster de servidores Oracle.

## OBJETIVOS

Que el estudiante adquiera los conocimientos y habilidades necesaria para instalar, configurar y mantener un cluster de servidores Oracle con la tecnología RAC.



PART 1 Oracle PL/SQL

## 1 Oracle PL/SQL Development Overview

PL/SQL's History and Background

Oracle Development Architecture

The Database

The PL/SQL Language

The Oracle Processing Architecture

Two-Tier Model

N-Tier Model

## 2. New Features

New SQL Features

Data Catalog DIRECTORY Qualifies a LIBRARY Object

Define Tables with Valid-Time (VT) Support

Enhanced Oracle Native LEFT OUTER JOIN Syntax

Default Values for Columns Based on Sequences

Default Values for Explicit Null Insertion

Identity Columns

Increased Size Limits of String and Raw Types

Pass Results from SQL Statements to External Programs

Native SQL Support for Query Row Limits and Offsets

Oracle Databases Driver for MySQL Applications

SQL CROSS APPLY, OUTER APPLY, and LATERAL

Bequeath CURRENT\_USER Views

New PL/SQL Features

Caching of Invoker Righ Functions

Ability to White List PL/SQL Program Unit Caller

Native Client API Support for PL/SQL Types

New PL/SQL Package UTL\_CALL\_STACK

DBMS\_UTILITY Adds EXPAND\_SQL\_TEXT Subprogram

DBMS\_SQL Adds a New Formal Schema to the PARSE Procedure

PL/SQL Functions in SQL WITH Clause

PL/SQL-Specific Data Types Allowed in SQL

Implicit REF CURSOR Parameter Binding

Supporting Scripts

## 3. PL/SQL Basics

Block Structure

Execution Block

Basic Block Structure

Declaration Block

Exception Block

Behavior of Variables in Blocks

Anonymous Blocks

Nested Anonymous Blocks

Local Named Blocks

Stored Named Blocks

Basic Scalar and Composite Data Types

Scalar Data Types

Attribute and Table Anchoring

Composite Data Type

Control Structures

Conditional Structures

Iterative Structures

Exceptions

User-Defined Exceptions

Dynamic User-Defined Exceptions

Bulk Operations  
Functions, Procedures, and Packages  
Functions  
Procedures  
Packages  
Transaction Scope  
Single Transaction Scope  
Multiple Transaction Scope  
Database Triggers

#### **4 Language Fundamentals**

Lexical Units  
Delimiters  
Identifiers  
Variables and Data Types  
Variable Data Type  
Scalar Data Types  
Large Objects (LOBs)  
Composite Data Types  
System Reference Cursors

#### **5 Control Structures**

Conditional Statements  
IF Statements  
CASE Statements  
Conditionals Compilation Statements  
Iterative Statements  
Simple Loop Statements  
FOR Loop Statements  
WHILE Loop Statements  
Cursor Structures  
Implicit Cursors  
Explicit Cursors

Bulk Statements  
BULK COLLECT INTO Statements  
FORALL Statements  
Supporting Scripts

#### **6 Collections**

Introduction to Collections  
Object Types: Varray and Table Collections  
Varray Collections  
Table Collections  
Associative Collection API  
COUNT Method  
DELETE Method  
EXISTS Method  
EXTEND Method  
FIRST Method  
LAST Method  
LIMIT Method  
NEXT Method  
PRIOR Method  
TRIM Method  
Supporting Scripts

#### **7 Error Management**

Exception Types and Scope  
Compilation Errors  
Runtime Errors  
Exception Management Built-in Functions  
User-Defined Exceptions  
Declaring User-Defined Exceptions  
Dynamic User-Defined Exceptions  
Exception Stack Functions  
Supporting Scripts

PART II PL/SQL Programming

## 8 Functions and Procedures

Function and Procedure Architecture

Transaction Scope

Calling Subroutines

Positional Notation

Named Notation

Mixed Notation

Exclusionary Notation

SQL Call Notation

Functions

Functions Model Choices

Creation Options

Pass-by Value Functions

Pass-by Reference Functions

Procedures

Pass-by Value Procedures

Pass-by Reference Procedures

Supporting Scripts

## 9 Packages

Package Architecture

Package Specification

Prototype Features

Serially Reusable Precompiler Directive

Variables

Types

Components: Functions and Procedures

Package Body

Prototype Features

Variables

Types

Components: Functions and Procedures

Definer vd. Invoker Rights Mechanics

Managing Packages in the Database Catalog

Finding, Validating, and Describing Packages

Checking Dependencies

Comparing Validations Methods: Timestamp vs. Signature

## 10 Large Objects

Working with Internally Stored LOB Types

LOB Assignments Under 32K

LOB Assignments Over 32K

Reading Files into Internally Stored Columns

Reading Local Files into CLOB or NCLOB Columns

Reading Local Files into BLOB Columns

Working with LOBs Through Web Pages

Working with Binary Files (BFILEs)

Creating and Using Virtual Directories

Reading Canonical Path Names and Filenames

Understanding the DBMS\_LOB Package

Package Constants

Package Exceptions

Opening and Closing Methods

Manipulation Methods

Introspection Methods

BFILE Methods

Temporary LOB Methods

Supporting Scripts

The LONG to CLOB Script

Manage LOBs from the File System

Manage CLOB and BLOB LOBs Through the Web

Manage BFILE LOBs Through the Web

**11 Object Type**

Object Basics  
Declaring Objects Types  
Implementing Object Bodies  
White Listing Object Types  
Getters and Setters  
Static Member Methods  
Comparing Objects  
Inheritance and Polymorphism  
Declaring Subclasses  
Implementing Subclasses  
Type Evolution  
Implementing Object Type Collections  
Declaring Object Type Collections  
Implementing Object Type Collections  
Supporting Scripts

**12 Triggers**

Introduction to Triggers  
Database Trigger Architecture  
Data Definition Language Triggers  
Event Attribute Functions  
Building DDL Triggers  
Data Manipulation Language Triggers  
Statement-Level Triggers  
Row-Level Triggers  
Compound Triggers  
INSTEAD OF Triggers  
System and Database Event Triggers  
Trigger Restrictions  
Maximum Trigger Size  
SQL Statements

LONG and LOG RAW Data Types

Mutating Tables

System Triggers

Supporting Scripting

**13 Dynamic SQL**

Dynamic SQL Architecture  
Native Dynamic SQL (NDS)  
Dynamic Statements  
Dynamic Statements with Inputs  
Dynamic Statements with Inputs and Outputs  
Dynamic Statements with an Unknown Number of Inputs  
DBMS\_SQL Package  
Dynamic Statements  
Dynamic Statements with Inputs Variables  
Dynamic Statements with Variable Inputs and Fixed Outputs  
Dynamic Statements with Variable Inputs and Outputs  
DBMS\_SQL Package Definition  
Supporting Scripts