

# Oracle Spatial: Essentials

**CODICE**

D56709GC10

**DURATA**

5 Giorni

**PREZZO**

2.500,00€ (iva escl.)

**LINGUA**

Italiano

**MODALITÀ**

Virtual Classroom  
Corso in aula

**SCHEDULAZIONE**

- A Richiesta

**PREREQUISITI**

Familiarity with SQL (recommended OU course: Introduction to SQL)  
Familiarity with Object relational data model  
Familiarity with PL/SQL (recommended OU course: Program with PL/SQL)  
Familiarity with mathematical geometry concepts

**Audience**

Application Developers  
Consulente tecnico  
PL/SQL Developer  
Sviluppatore PL/SQL  
Sviluppatori di applicazioni  
Technical Administrator  
Technical Consultant

**OBIETTIVI**

Create spatial layers by using the SDO\_GEOMETRY data type  
Load geometries into spatial layers  
Employ spatial operators and functions to generate and access 2D geometries  
Describe the various types of coordinate systems  
Run spatial queries to perform spatial analysis  
Enhance and tune spatial indexes for better performance  
Describe the linear referencing system  
Describe Oracle Spatial geocoding and routing concepts  
Setup and demonstrate Oracle Maps  
Use MapViewer and the Map Builder tool to render maps  
Describe the Oracle Spatial data and query models

## CONTENUTI

Introduction

Oracle Database: Location Features

Oracle Spatial: Spatial Data Management for Enterprise Applications

Oracle Spatial Development History

Oracle Spatial and Locator: art of the Oracle DBMS Kernel

Oracle Spatial Object-Relational Model

Review: Oracle's Object-Relational Model

Common Geographical Terms Used in the Course

Oracle Spatial Documentation and Resources

Overview of Oracle Spatial Concepts

Define Oracle Spatial

Describe Geometric Primitive Types

Describe the Spatial Data Model

Coordinate Systems: Concepts

Explain Spatial Indexing

Describe the Optimized Query Model

Define Linear Referencing System

Define Geocoding and Routing

Creating Spatial Layers

Describe the MDSYS Schema

Spatial Native Data Type: SDO\_GEOMETRY

Define different types of geometry elements

Construction of geometries by using the INSERT statement

Manage Spatial metadata

Defining Collection Geometries

Define Collection geometries: Multipoint, Multiline string, and Multipolygon

Describe Oriented point

SDO\_GEOMETRY constructors and member methods

Associating Spatial Layers with Coordinate Systems

Define Coordinate systems and their different types

Geodetic coordinate system concepts

Whole earth geometry model and tolerance

Coordinate system transformations

Units supported by Oracle Spatial

Loading Spatial Data

Different ways of loading spatial data

Loading of spatial data by using SQL\*Loader

Export and import utilities of the Data Pump technology

Load data using transportable tablespace

Load data using transactional insert

Use the Java shapefile converter

## Validating and Debugging Geometries

Validation functions: `SDO_GEOM.VALIDATE_GEOMETRY_WITH_CONTEXT` and `SDO_GEOM.VALIDATE_LAYER_WITH_CONTEXT`

Geometry debugging functions: `SDO_UTIL.GETVERTICES`, `SDO_UTIL.RECTIFY_GEOMETRY`, and `SDO_UTIL.EXTRACT`

## Strategy for Geometry Validation

Using the Oracle Application Server MapViewer

Introduction to MapViewer

Architecture of Oracle Application Server MapViewer

Installation of Oracle Application Server MapViewer

Use MapViewer demos

Edit MapViewer Configuration File

Indexing Spatial Data

Concepts of R-tree indexing

`CREATE INDEX` and the R-tree parameters

Analyze, drop, and alter operations on the spatial index

Use the Spatial index dictionary views

Estimate R-tree index size and the resources required

Querying Spatial Data

Overview of the Spatial query model

Overview of spatial operators, procedures, and functions

Use the `SDO_FILTER` operator

Define Spatial topological relationships

Use the `SDO_RELATE` operator

Use the `SDO_GEOM.RELATE` function

Using `SDO_WITHIN_DISTANCE`, `SDO_NN`, and `SDO_JOIN` Operators

Spatial queries and operators

Describe the `SDO_WITHIN_DISTANCE` operator

Describe the `SDO_NN` operator

Spatial join by using the `SDO_JOIN` operator

Analyzing Geometries by Using Spatial Operators and Functions

Calculation of the area, length, and distance between geometries

Describe Arc densification and buffering

Use the Spatial Boolean functions

Explicit transformations with spatial functions

Using Spatial Analysis, MBR, Utility, and Aggregate Functions

Describe some of the Spatial analysis functions

Describe some of the Spatial MBR functions

Describe some of the Spatial utility functions

Describe some of the Spatial aggregate functions

Conversion between `SDO_GEOMETRY` and Geography Markup Language (GML)

Defining Maps by Using the Map Builder Tool

Introduction to Map Builder

Export and import styles

Use of Map Builder to administer style, theme, and map definitions

Use the Sample mapclient.jsp

Define a Sample XML request with elements

Open Geospatial Consortium (OGC) Web Map Service (WMS) and Oracle Workspace Manager support

Leveraging Oracle Maps: The Map Cache and JavaScript API

Oracle Maps concepts

Oracle Maps demo setup

Maps and Faces demo

More Oracle Maps demos

Creating a User-Defined Coordinate System

Coordinate systems concepts: Ellipsoids, Datums, and projections

Geodetic or projected coordinate systems

Define OGC WKT schema and EPSG

Creation of a user-defined coordinate system

Local coordinate system

Implementing a Linear Referencing System

Linear Referencing System (LRS) concepts

Define LRS geometries

Overview of LRS functions

Implementation of an LRS

Managing Spatial Indexes

Oracle Spatial index partitioning

Partition spatial data based on location

Define function-based indexes

Use transportable tablespaces

Embedded spatial geometry

Geocoding Address Data

Geocoding concepts

Oracle Spatial geocoding functions

SDO\_KEYWORDARRAY, SDO\_GEO\_ADDR, and SDO\_ADDR\_ARRAY types

Examples using geocoding functions

Geocoding service

Using the Spatial Routing Engine

Oracle Spatial Routing architecture

Route request and response

Sample RouteServer JSP

### **Description:**

The course extensively covers the concepts and usage of the native data types, functions and operators available in Oracle Spatial for implementing geospatial applications and location-based services.

Using the Oracle Application Server MapViewer, students learn how to render maps and view geospatial data managed by Oracle Spatial or Locator. Students also get introduced to basics of geocoding and routing concepts.

Demonstrations and hands-on practice reinforce the fundamental concepts.



The Oracle Spatial: Essentials course is applicable to both 10g and 11g audiences.

Learn to:

Load geometries into spatial layers

Create spatial layers by using the SDO\_GEOMETRY data type

Employ spatial operators and functions to generate and access 2D geometries

Setup and demonstrate Oracle Maps

Run spatial queries to perform spatial analysis

Use MapViewer and the Map Builder tool to render maps

*Prezzi e corsi potrebbero subire variazioni; si consiglia di verificare sul sito [www.novanext.it/training](http://www.novanext.it/training).*