Geographical Databases: Oracle Locator

Introduction

Like PostgreSQL, Oracle supports spatial data mingled with non-spatial data through dedicated data types and functions, but the type system is slightly more complex. Most of the concepts, however, will be familiar from our work with Oracle's Object-Relational framework. This session aims to give you a brief introduction to the commonalities and differences between the two systems.

References

Oracle Spatial Concepts:
http://docs.oracle.com/cd/E16338_01/appdev.112/e11830/sdo_intro.htm

Oracle Spatial Reference:
http://docs.oracle.com/cd/E16338_01/appdev.112/e11830/sdo_prtref.htm

Oracle Spatial Documentation:
http://www.oracle.com/technetwork/database/options/spatialandgraph/spatial/documentation/guides/index.html

Connection Parameters

Launch Oracle SQL Developer

Server: 164.15.81.95

User/pass: sdi%d / sdi%d   (%d in 2..25)

You can execute queries either through SQL Developer or get an interactive prompt by launching `sqlplus` from the command line.

DESC

Oracle's format for storing geographical data is provided by a SQL schema named "MDSYS", defining numerous data types for storing vector and raster data. In addition to the reference documents, Oracle makes it easy to learn about these data types through the DESC (short for Describe) function, which returns a description of any table, data type or package. Study the output of the following statements:

DESC SDO_GEOM

DESC SDO_GEOMETRY

DESC SDO_UTIL

Exercises

1. Create data types to store cities, provinces, regions and rivers, storing a name for each.
2. Export the tables from our PostgreSQL database and adapt them for import in Oracle.
3. Execute the following queries:
   a. Compute the distance between the cities of IXELLES and BRUGES.
   b. Compute the bounding rectangle for the BRABANT province.
   c. Compute the (geographical) union of the bel_regn and bel_prov tables.
   d. Compute the length of each river
   e. Using a buffer, create a table containing all cities that stand less than 1000m from a river.
   f. For each river, compute the length of its path inside each province it traverses.