



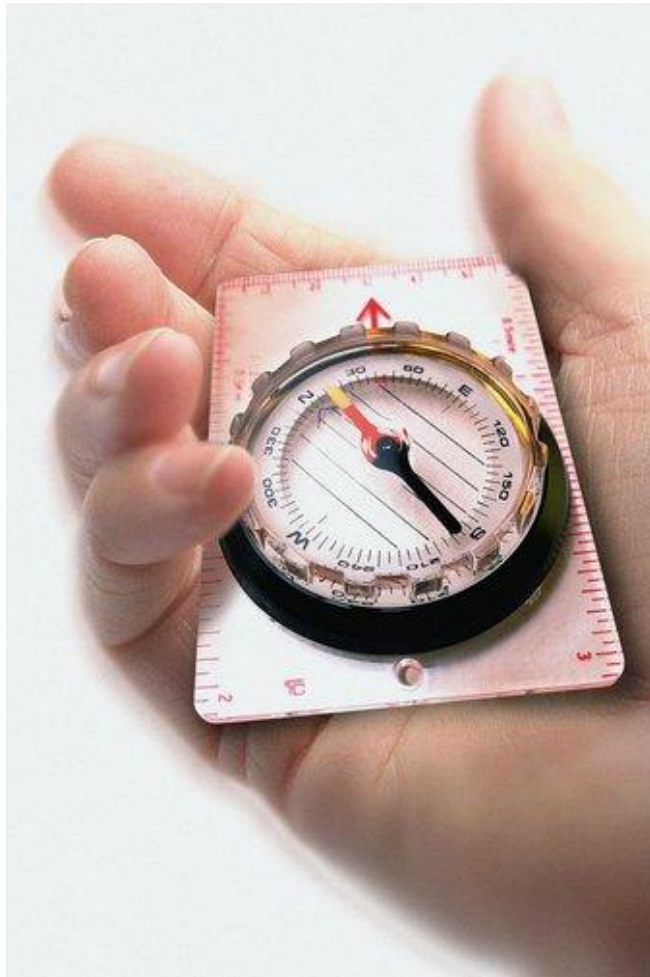
Basic Oracle Concepts





Course objectives

By completing this course, you will learn:



- What a database is and what makes a database relational
- What SQL is
- Which database objects are supported in Oracle 10g
- What a database administrator does
- How the Oracle database fits into the Oracle product family
- To explain the Oracle database architecture construct
- To explain the instance architecture





Course topics

Course's plan:



- Introduction to Database and Relational Model
- Oracle Architecture





Introduction to Database and Relational Model



Preview

- Oracle Products
- Relational Database Systems
- Structured Query Language
- Tasks of an Oracle Database Administrator





Oracle Products

- Oracle Database
- Oracle Application Server
- Oracle Applications
- Oracle Collaboration Suite
- Oracle Development Suite
- Oracle Services





Relational Database Systems

Table



Row



Column



Field or cell





Relational Database Systems

Employees



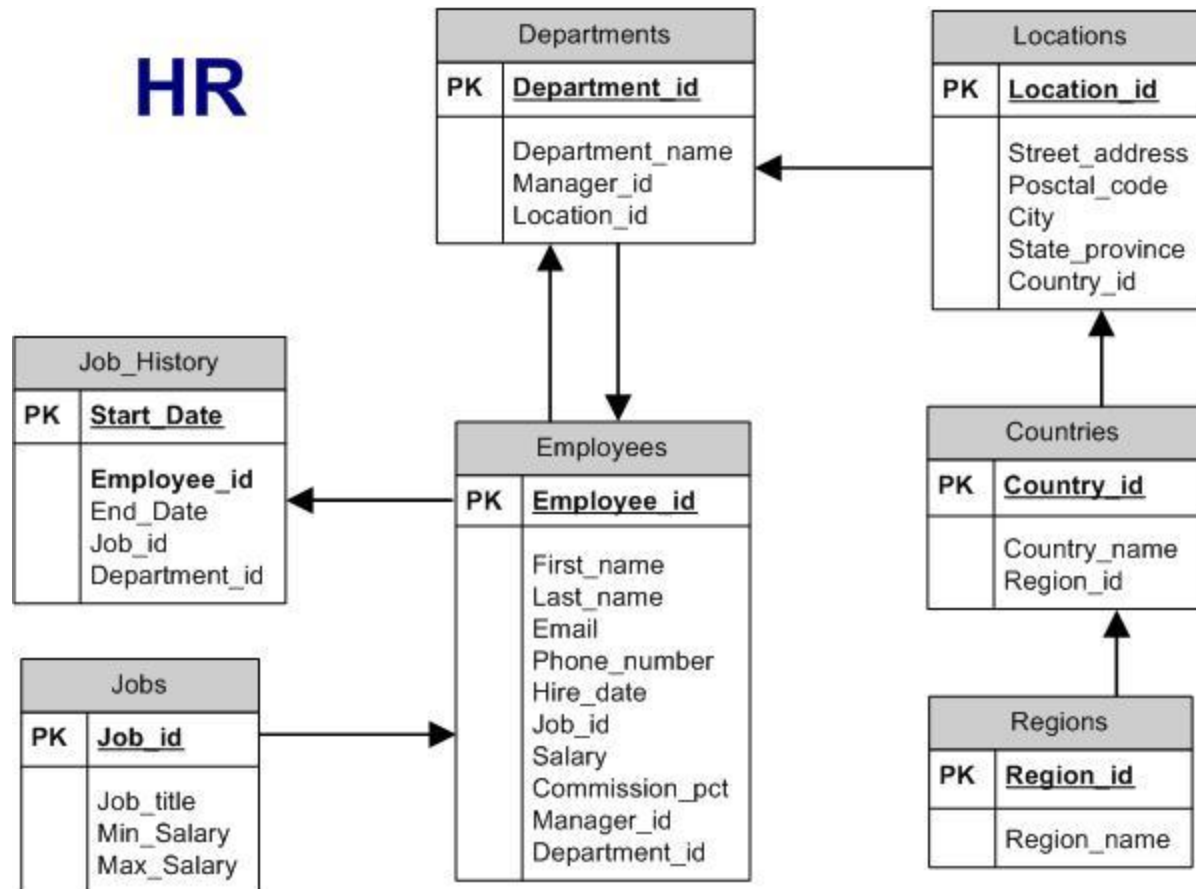
Departments





Relational Database Systems

HR





Structured Query Language

- Structured query language (SQL): A standard interactive and programming language for getting information from and updating information in a database
- SQL provides statements for a variety of tasks, including:
 - Querying data
 - Inserting, updating, and deleting rows in a table
 - Creating, replacing, altering, and dropping objects
 - Controlling access to the database and its objects
 - Guaranteeing database consistency and integrity





Tasks of an Oracle Database Administrator

- Prioritized approach for designing, implementing, and maintaining an Oracle database:
 - Evaluate the database server hardware.
 - Install the Oracle software.
 - Plan the database.
 - Create and open the database.
 - Back up the database.
 - Enroll system users.
 - Implement the database design.
 - Recover from database failure.
 - Monitor database performance.





Part 1 Summary



**Oracle
Products**



**Tasks of a
DBA**



**Relational
Database
Systems**



SQL





Part 1 Stop-and-think

Do you have any questions ?





Oracle Architecture



Preview

- Storage
- Logical Structures
- The Data Dictionary
- Database/Grid Control

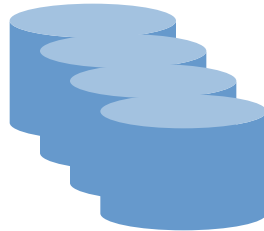




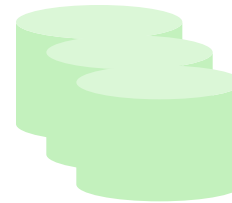
Storage



Control files



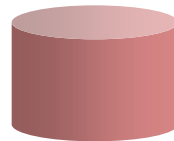
Data files



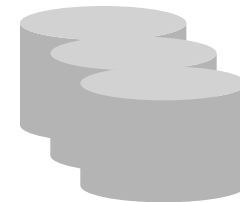
Online redo log files



Parameter file



Password file



Archive log files





Storage

Control Files

- Contain physical database structure information
- Multiplexed to protect against loss
- Required to start the instance



Control files

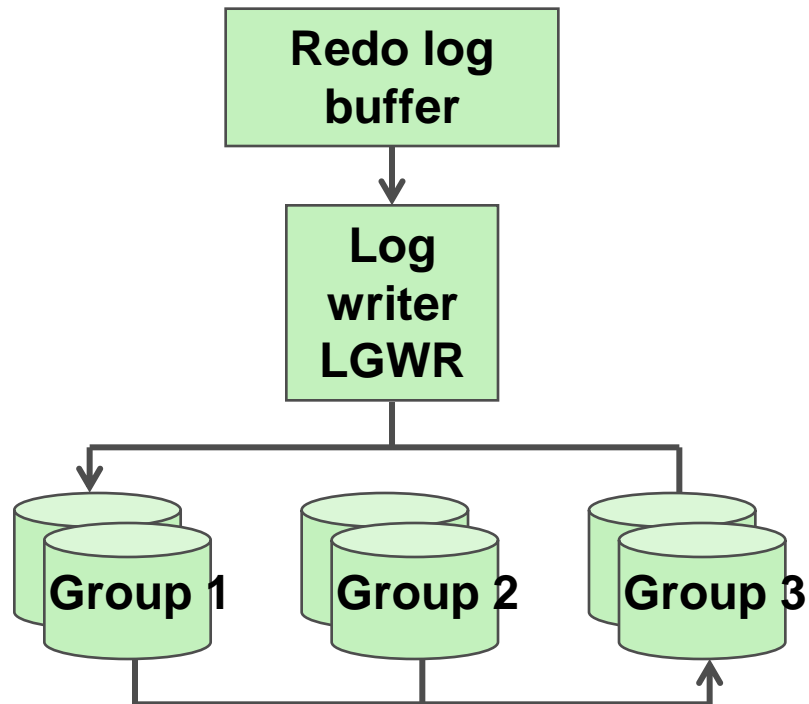




Storage

Redo Log Files

- Record changes to the database
- Multiplexed to protect against losses

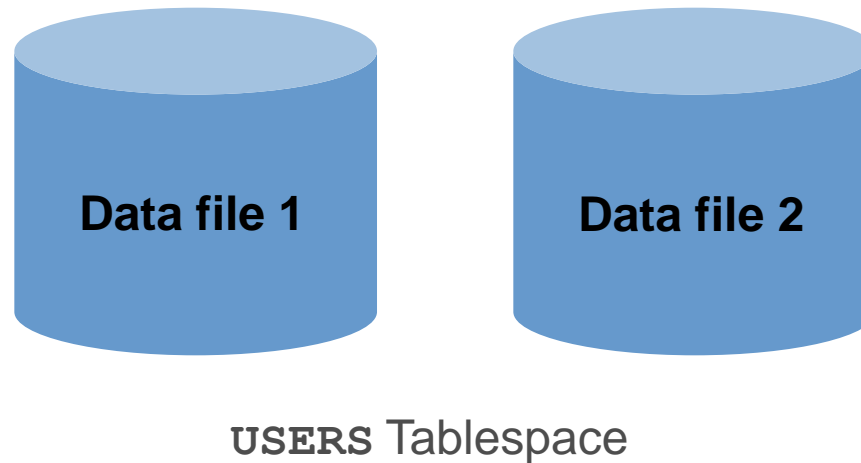




Storage

Tablespaces and Data files

- Tablespaces consist of one or more data files.
- Data files belong to only one tablespace.

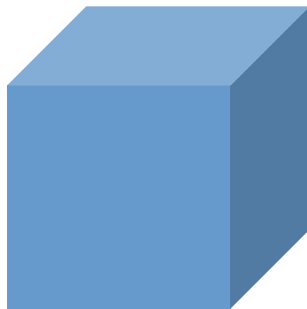




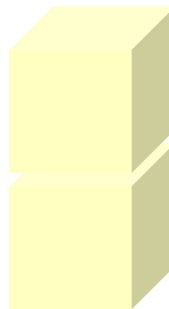
Storage

Segments, Extents, and Blocks

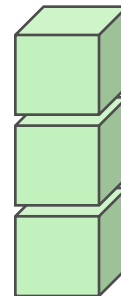
- Segments exist within a tablespace.
- Segments are made of a collection of extents.
- Extents are a collection of data blocks.
- Data blocks are mapped to OS blocks.



Segment



Extents



**Data
blocks**



OS blocks





Storage

Exploring the Storage Structure

The screenshot shows the Oracle Enterprise Manager web interface. At the top, the Oracle logo is in red, followed by "Enterprise Manager" in blue. Below this is a blue horizontal bar. The database name "orcl.us.oracle.com" is displayed. A navigation bar contains links for "Home", "Performance", "Administration" (which is highlighted), and "Maintenance". Under the "Administration" tab, there are two main sections: "Instance" and "Storage". The "Storage" section is expanded, showing a list of links: "Controlfiles", "Tablespaces", "Datafiles", "Rollback Segments", "Redo Log Groups", "Archive Logs", and "Temporary Tablespace Groups". An arrow points from the text "Click on the links to view detailed information" to the "Temporary Tablespace Groups" link.

ORACLE
Enterprise Manager

Database: orcl.us.oracle.com

[Home](#) [Performance](#) [Administration](#) [Maintenance](#)

Instance

- [Memory Parameters](#)
- [Undo Management](#)
- [All Initialization Parameters](#)

Storage

- [Controlfiles](#)
- [Tablespaces](#)
- [Datafiles](#)
- [Rollback Segments](#)
- [Redo Log Groups](#)
- [Archive Logs](#)
- [Temporary Tablespace Groups](#)

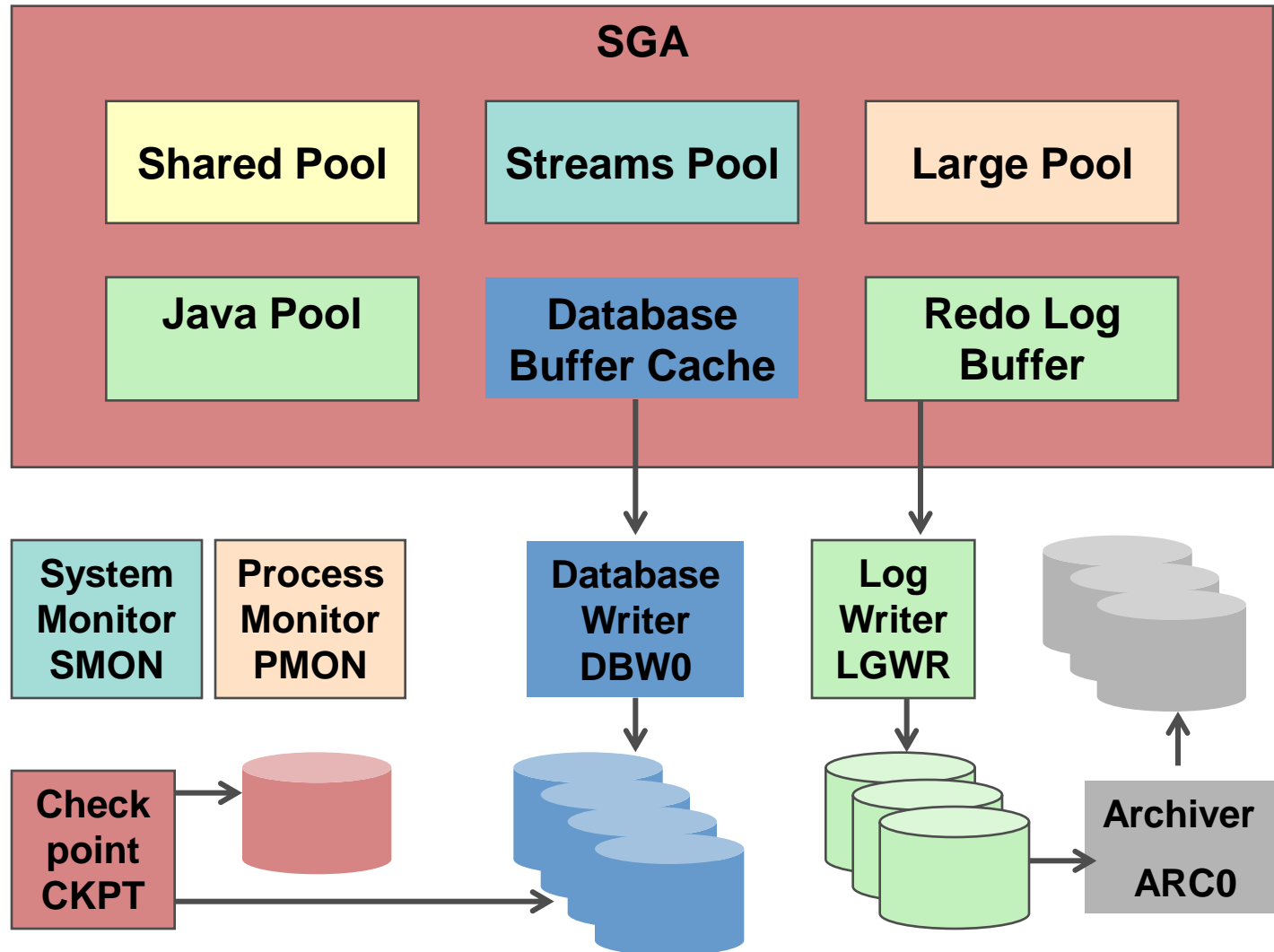
Click on the links to view
detailed information





Logical structures

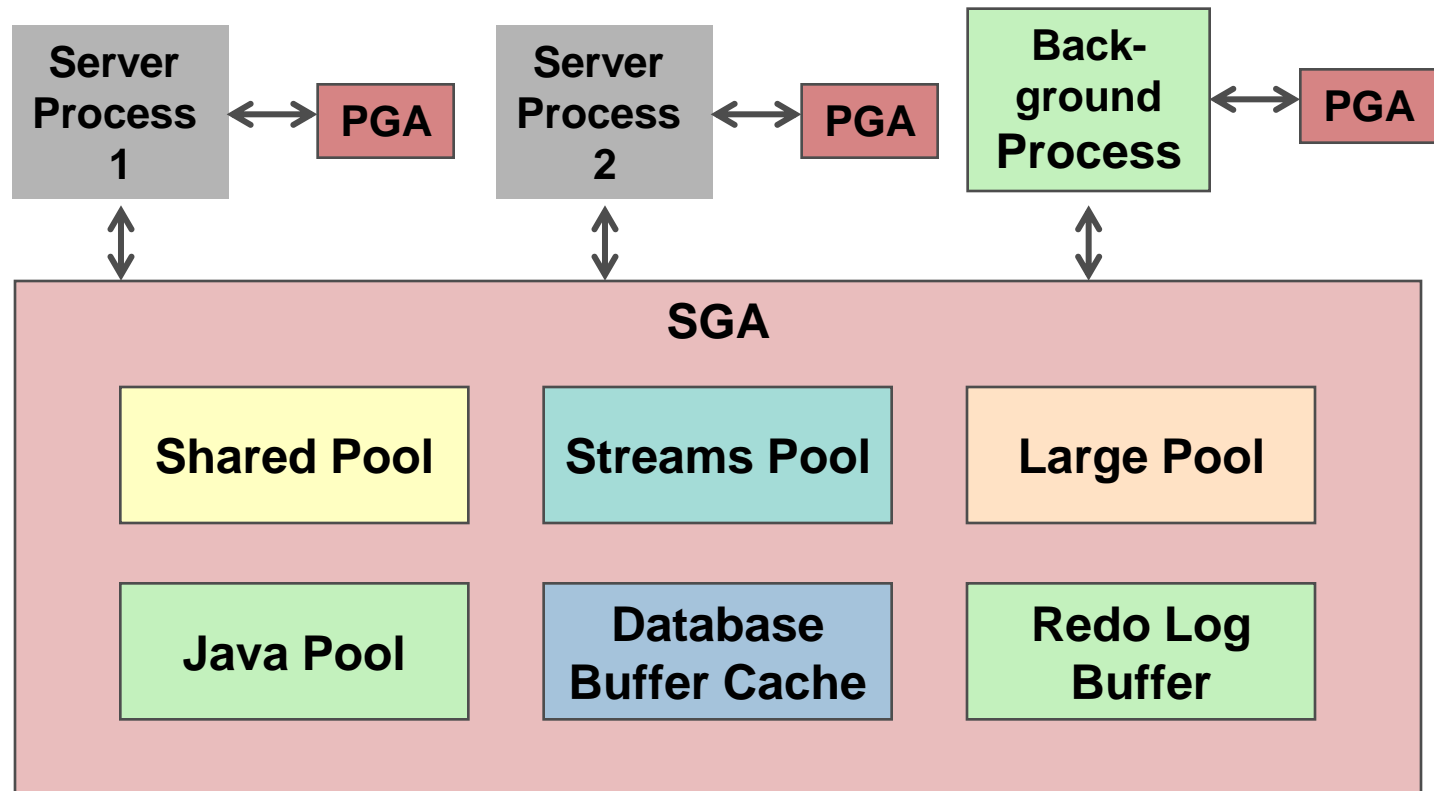
Oracle Instance Management





Logical structures

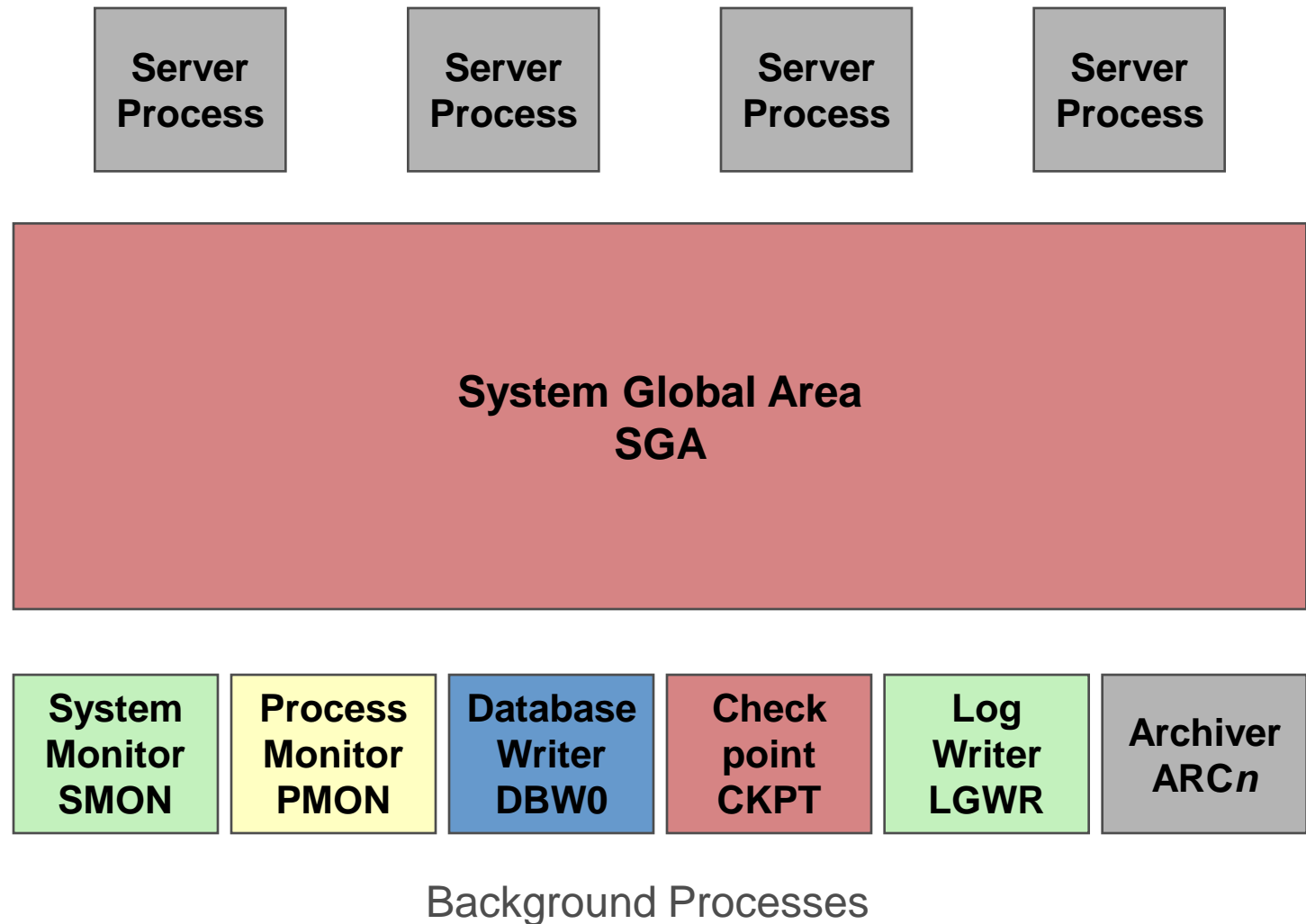
Oracle Memory Structures





Logical structures

Oracle Processes





The Data Dictionary

Data dictionary in Enterprise Manager

Workspace

Enter SQL, PL/SQL and SQL*Plus statements.

Clear

```
select * from dictionary;
```

Execute

Load Script

Save Script

Cancel

TABLE_NAME	COMMENTS
USER_RESOURCE_LIMITS	Display resource limit of the user
USER_PASSWORD_LIMITS	Display password limits of the user
USER_CATALOG	Tables, Views, Synonyms and Sequences owned by the user
ALL_CATALOG	All tables, views, synonyms, sequences accessible to the user



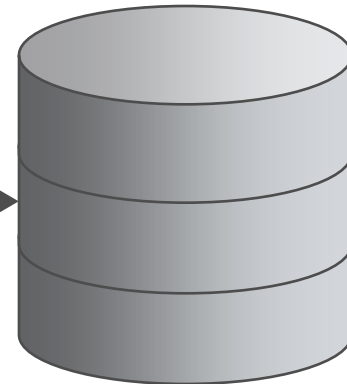


Database/Grid Control

Database Control



Database
control



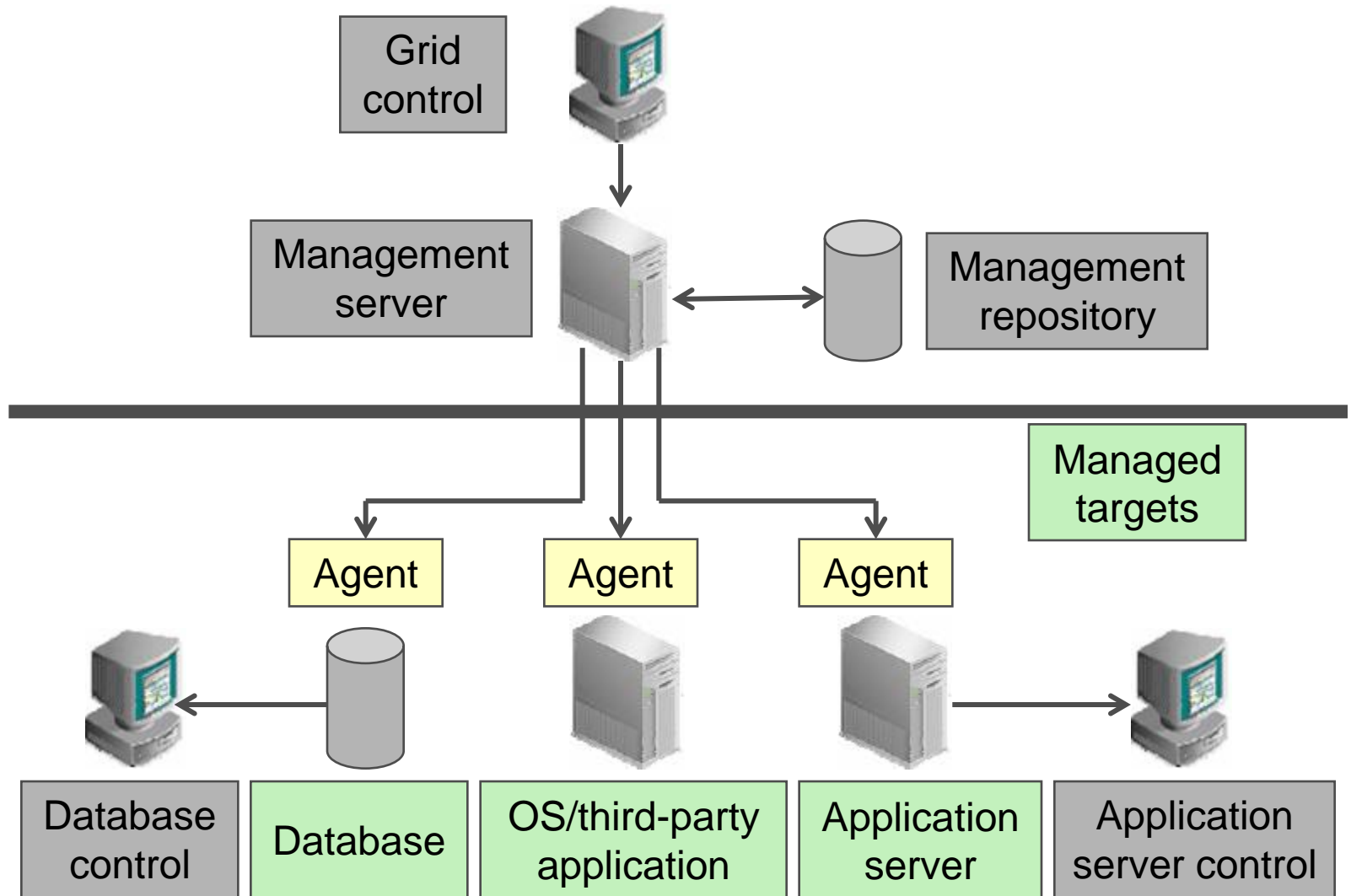
ORACLE
DATABASE **10^g**





Database/Grid Control

Grid Control

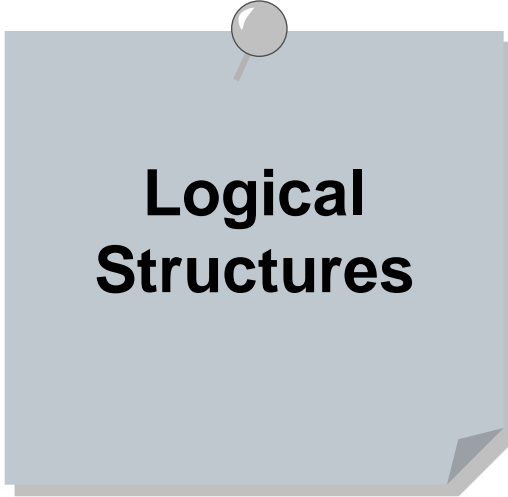




Part 2 Summary



Storage



**Logical
Structures**



**The Data
Dictionary**



**Database/Grid
Control**





Part 2 Stop-and-think

Do you have any questions ?

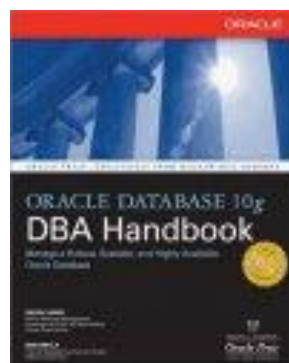
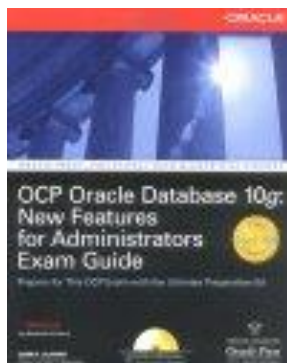




For more

If you want to go into these subjects more deeply, ...

Publications



<http://www.oracle.../bookstore/>

Web sites

<http://www.labo-oracle.com>

<http://www.oracle.com>

<http://otn.oracle.com>

Courses

Cursus: Merise & SQL

Cursus: PL/SQL

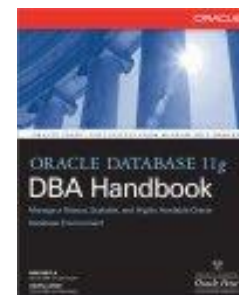
Cursus: DBA1 & DBA2

Cursus: DWH, OAS & BIS

Certifications

1Z0-042

1Z0-043





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INFORMATION TECHNOLOGY

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the SUPINFO course n°2

Oracle Technologies
Basic Oracle Concepts

The end

