



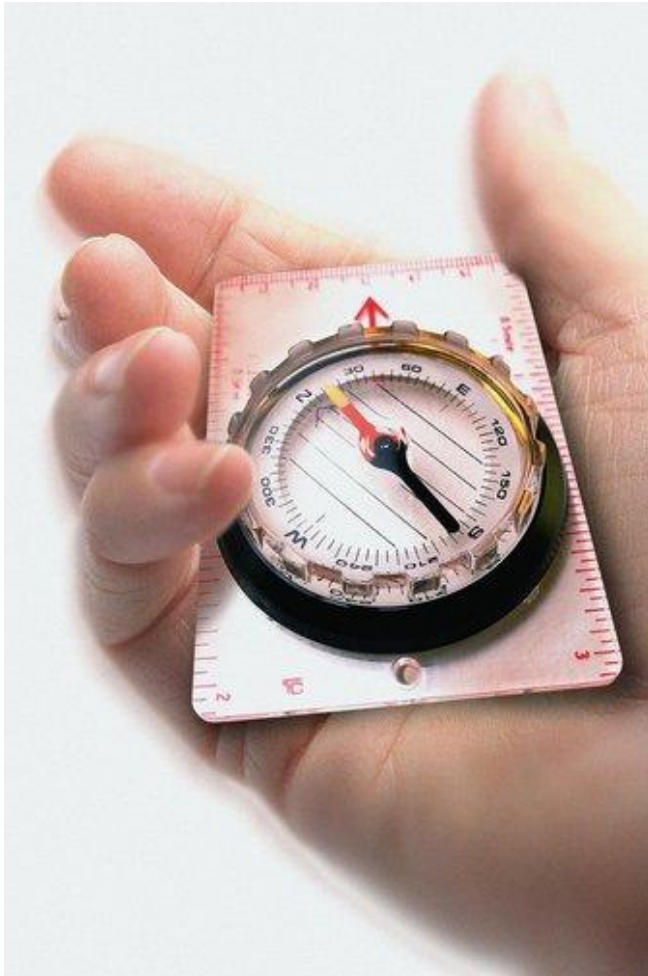
# Manipulating Database Data





# Course objectives

By completing this course, you will be able to:



- **Manipulate data through SQL**
- **Use Data Pump to export data**
- **Use Data Pump to import data**
- **Load data with SQL\*Loader**





## Course topics

Course's plan:



- Data Pump
- SQL\*Loader



## Manipulating Database Data



**Data Pump**





# Preview

- Manipulating Data through SQL
- Data Pump Export
- Data Pump Import
- Directory Objects





# Manipulating data through SQL

Inserting, updating or deleting data

```
SQL> INSERT INTO employees VALUES  
2 (9999, 'Bob', 'Builder', 'bob@abc.net', NULL,  
3 SYSDATE, 'IT_PROG', NULL, NULL, 100, 90);
```

1 row created.

```
SQL> UPDATE employees SET SALARY=6000  
2 WHERE EMPLOYEE_ID = 9999;
```

1 row updated.

```
SQL> DELETE from employees  
2 WHERE EMPLOYEE_ID = 9999;
```

1 row deleted.

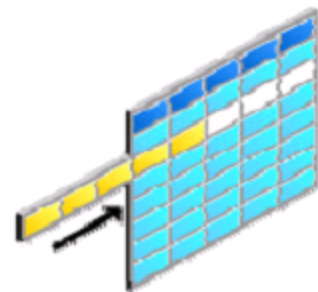
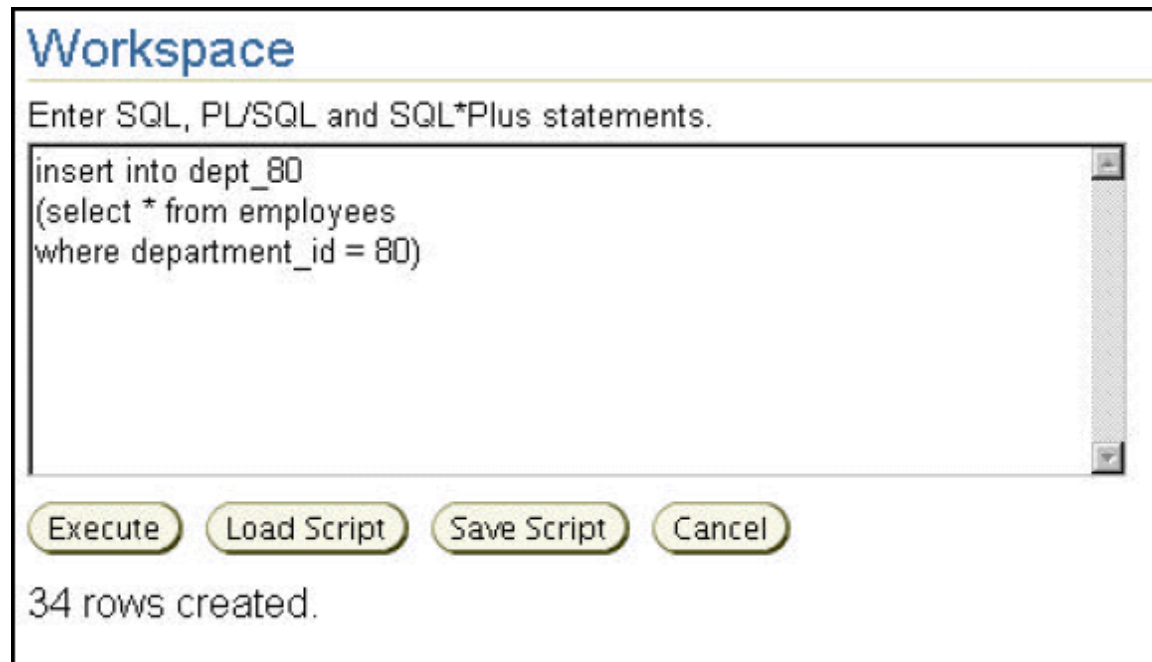




# Manipulating data through SQL

## The Insert command

- Create one row at a time
- Insert many rows from another table





# Manipulating data through SQL

## The Update command

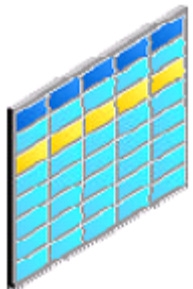
- Use to change zero or more rows of a table

**Workspace**

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

```
update employees  
set salary = salary * 1.1  
where department_id = 90;
```

4 rows updated.







# Manipulating data through SQL

## The Delete command

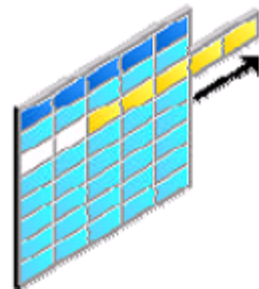
- Use to change zero or more rows of a table

**Workspace**

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

```
delete from employees  
where department_id = 200
```

0 rows deleted.





# Manipulating data through SQL

## The Commit and Rollback commands

- Used to finish a transaction:
  - Commit: Makes the change permanent
  - Rollback: Undoes the change

**Workspace**

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

COMMIT

Clear

Execute Load Script Save Script Cancel

Commit complete.





# Integrity Constraints and DML

## Integrity Constraints and DML

### Workspace

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

```
update employees  
set department_id = 99  
where last_name = 'King'
```

Execute

Load Script

Save Script

Cancel

```
update employees  
*
```

ERROR at line 1:

ORA-02291: integrity constraint (HR.EMP\_DEPT\_FK) violated - parent key not found





# Data Pump Export

Writing data out to a file

Database: orcl.us.oracle.com

Home Performance Administration **Maintenance**

**Utilities**

- [Export to Files](#)
- [Import from Files](#)
- [Import from Database](#)
- [Load Data from File](#)
- [Gather Statistics](#)
- [Reorganize Objects](#)
- [Make Tablespace Locally Managed](#)

Database: orcl.us.oracle.com > Export: Export Type

**Export: Export Type**

Database **orcl.us.oracle.com** Cancel Continue

☐ Database  
Exports the entire database.

☐ Schemas  
Allows you to choose one or more schemas and to export the objects in those schemas.

☒ Tables  
Allows you to choose one or more tables to export from a selected schema.

**Host Credentials**

\* Username

\* Password

☒ Save as Preferred Credential





# Data Pump Import

Database: [orcl.us.oracle.com](http://orcl.us.oracle.com) > Import: Files

## Import: Files

Database **orcl.us.oracle.com**

Cancel

Continue

Database Version of Files to Import **10g or later** **Go**

Changing the version affects attributes below.

### Files

Specify the directory name and file name of the import files on the database server machine.

Create Directory Object

Remove

Select Directory Object

File Name



DATA\_FILE\_DIR

EXPDAT%U.DMP

Add Another Row

You can wildcard a set of dump files using "%U" in the filename.

### Import Type

☒ Entire files

☐ Schemas

Allows you to choose one or more schemas and to import the objects in those schemas.

☐ Tables

Allows you to choose one or more tables to import from a selected schema.

### Host Credentials

\* Username

\* Password

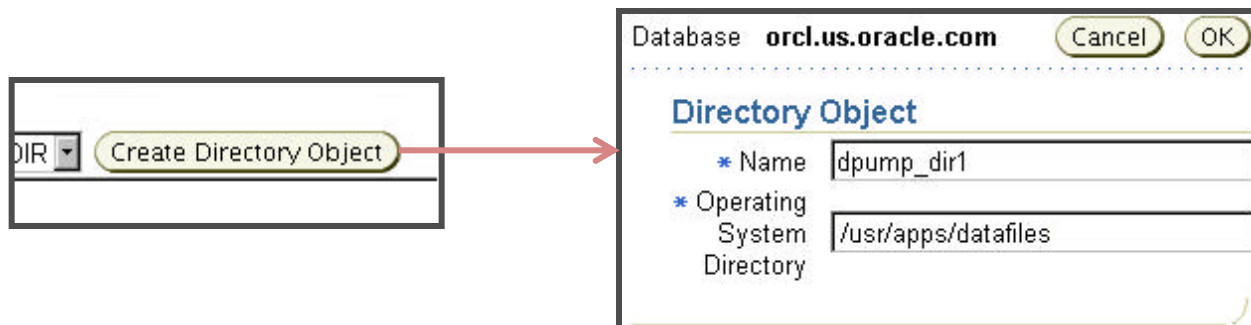
☒ Save as Preferred Credential





# Directory Objects

Alias for a directory on the server's file system



```
SQL> CREATE DIRECTORY dpump_dir1
2 AS '/usr/apps/datafiles';
```

Directory created.

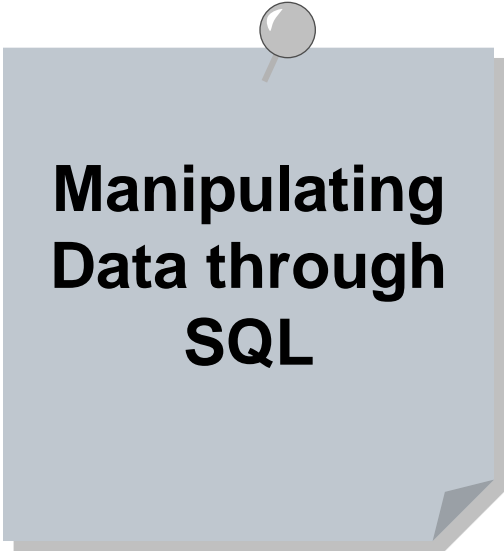
```
SQL> SELECT * FROM DBA_DIRECTORIES
2 WHERE DIRECTORY_NAME = 'DPUMP_DIR1';
```

OWNER	DIRECTORY_NAME	DIRECTORY_PATH
SYS	DPUMP_DIR1	/usr/apps/datafiles





# Part 1 Summary



**Manipulating  
Data through  
SQL**



**Directory  
Objects**



**Data Pump  
Export**



**Data Pump  
Import**





## Part 1 Stop-and-think

Do you have any questions ?





## Manipulating Database Data



**SQL\*Loader**



# Preview

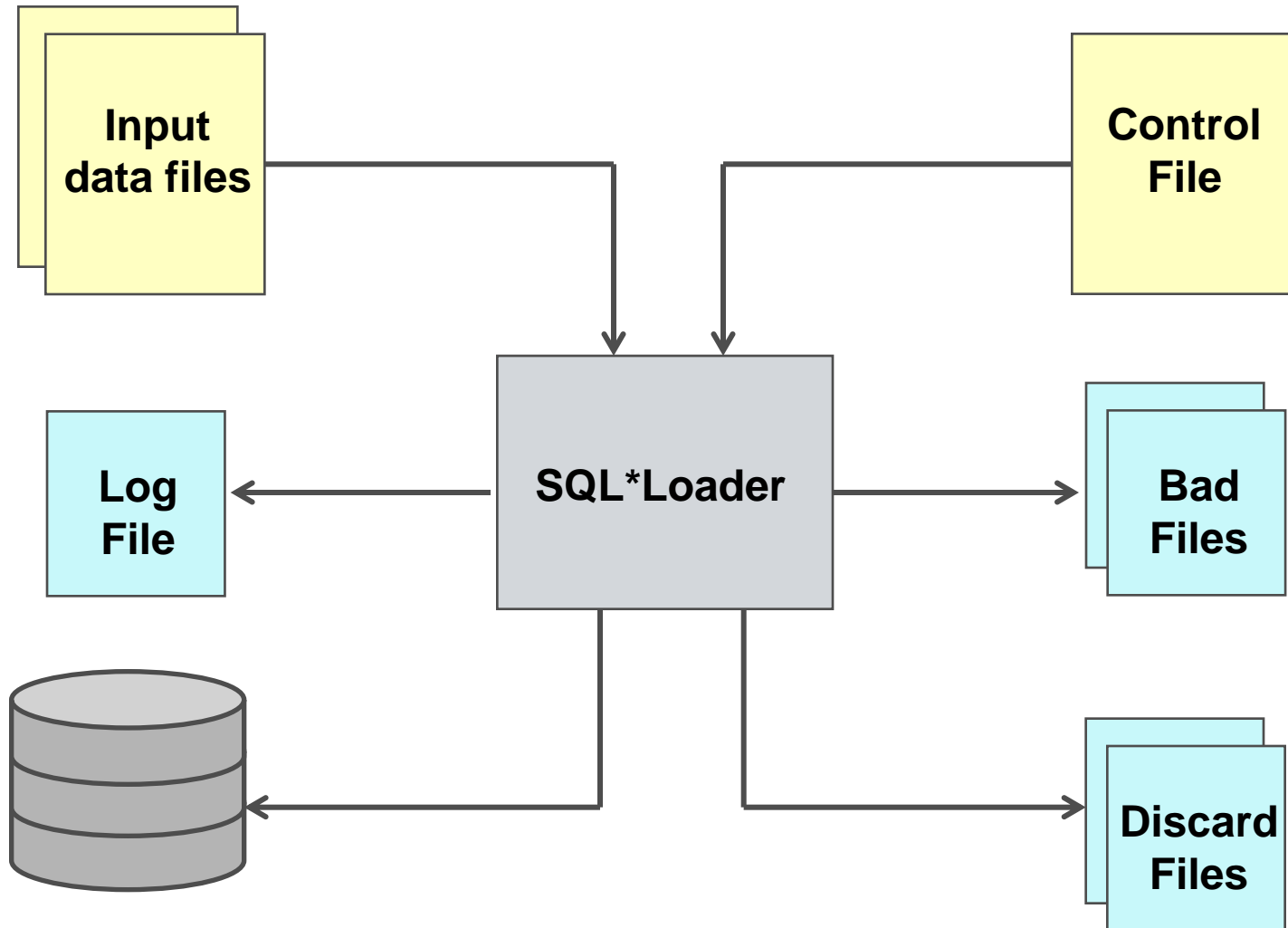
- Presentation.
- The SQL\*Loader Control File.
- Methods for Loading Data.
- Loading Data





# Presentation

## What's SQL\*Loader?



Tables and Indexes





# The SQL\*Loader Control File

## Information from the loader control file

The loader control file tells SQL\*Loader:

- Where to find the load data
- The date format
- Configuration details:
  - Memory management
  - Record rejection
  - Interrupted load handling details
- How to Manipulate the data





# The SQL\*Loader Control File

## Control File Syntax Consideration

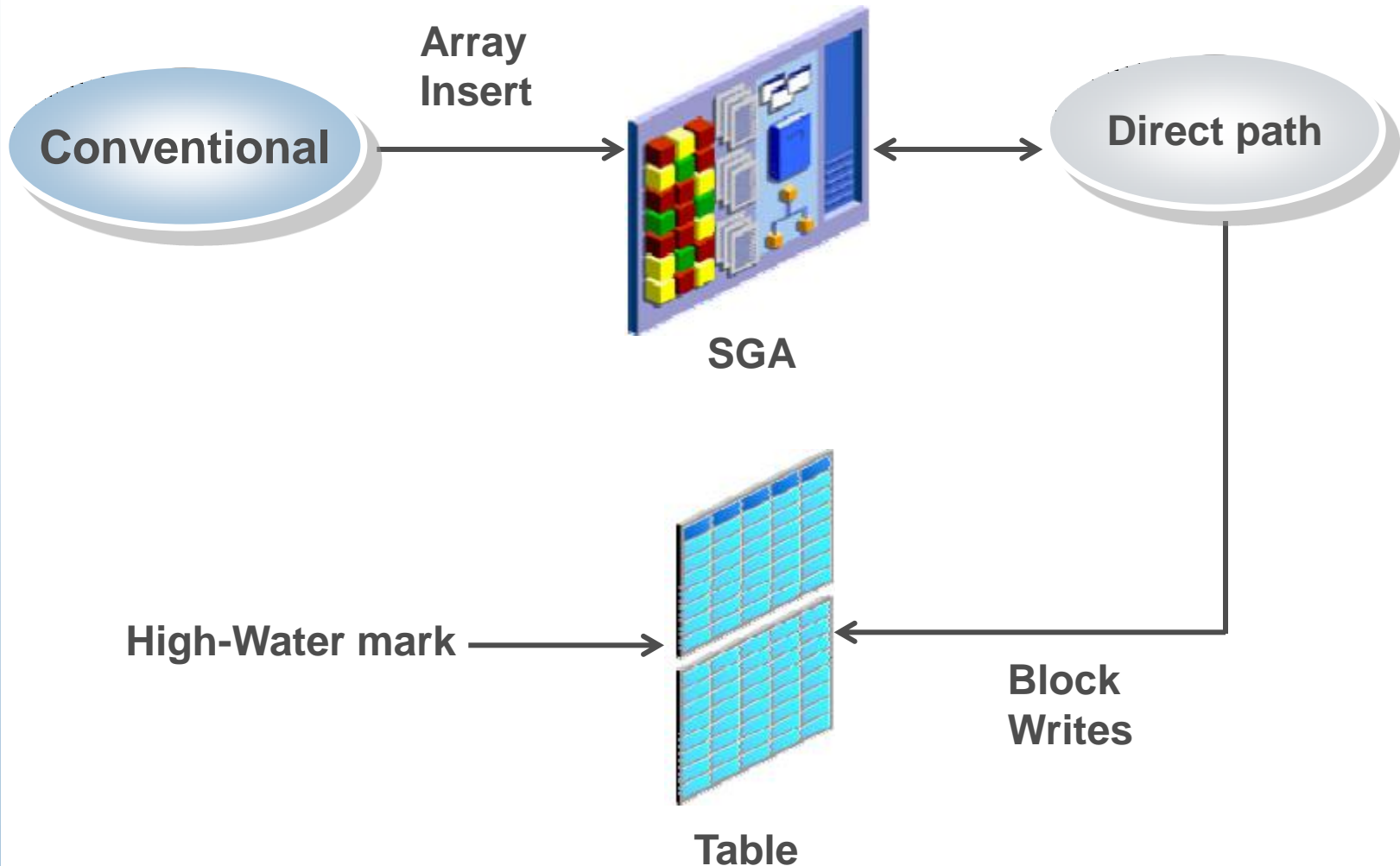
- The syntax is free-format
- Syntax is not case sensitive
- Comments extend from the two hyphens (--) that mark the beginning of the comment to the end of the line.
- The **CONSTANT** keyword is reserved.





# Methods for Loading Data

The two methods for loading data





# Methods for Loading Data

## Comparing Direct and Conventional Path Loads

Conventional Load	Direct Path Load
Uses COMMIT to make changes permanent	Uses data saves
Redo entries always generated	Generates redo only under specific conditions
Enforces all constraints	Enforces only PRIMARY KEY, UNIQUE, and NOT NULL
INSERT triggers fire	INSERT triggers do not fire
Can load into clustered tables	Cannot load into clustered tables
Other users can make changes to tables	Other users cannot make changes to tables

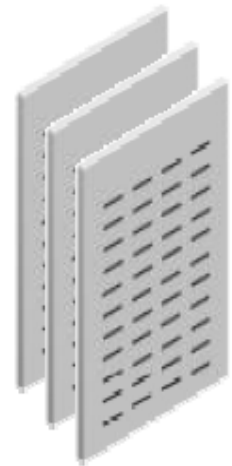




# Loading Data

## Input Data and Data Files

- SQL\*Loader reads data from one or more files specified in the control file.
- From SQL\*Loader's perspective, the data in the data file is organized as records.
- A data file can be in one of three formats:
  - Fixed-record format
  - Variable-record format
  - Stream-record format







SQL\*Loader

# Loading Data

## Loading Data with SQL\*Loader



**ORACLE Enterprise Manager 10g** Database Control [Setup](#) [Preferences](#) [Help](#) [Logout](#) **Database**

Control File Data File Load Method Options Schedule Review

### Load Data: Control File

Database **orcl.oracle.com** [Cancel](#) [Finish](#) [Step 1 of 6](#) [Next](#)

A control file is used to describe what will be loaded and how. Specify the full path and name of the control file on the database server machine.

#### Host Credentials

\* Username

\* Password

☒ Save as Preferred Credential





# Part 2 Summary

**Presentation**

**The  
SQL\*Loader  
Control File**

**Methods for  
Loading Data**

**Loading  
Data**





## Part 2 Stop-and-think

Do you have any questions ?

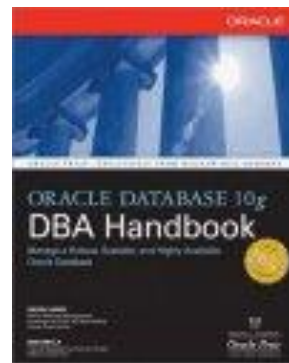
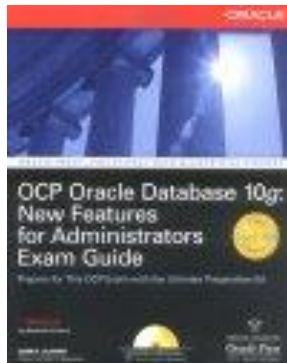




# For more

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

### Publications



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

### Courses

Cursus: Merise & SQL

Cursus: PL/SQL

Cursus: DBA1 & DBA2

Cursus: DWH, OAS & BIS

### Web sites

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

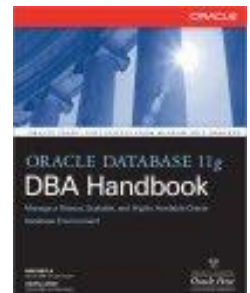
<http://www.oracle.com>

<http://otn.oracle.com>

### Certifications

1Z0-042

1Z0-043





THE INTERNATIONAL INSTITUTE OF

**SUPINFO**

INFORMATION TECHNOLOGY

# **Congratulations**

You have successfully completed  
the SUPINFO course module n°11

**Oracle Technologies**  
**Manipulating Database Data**

# The end

