Managing Undo

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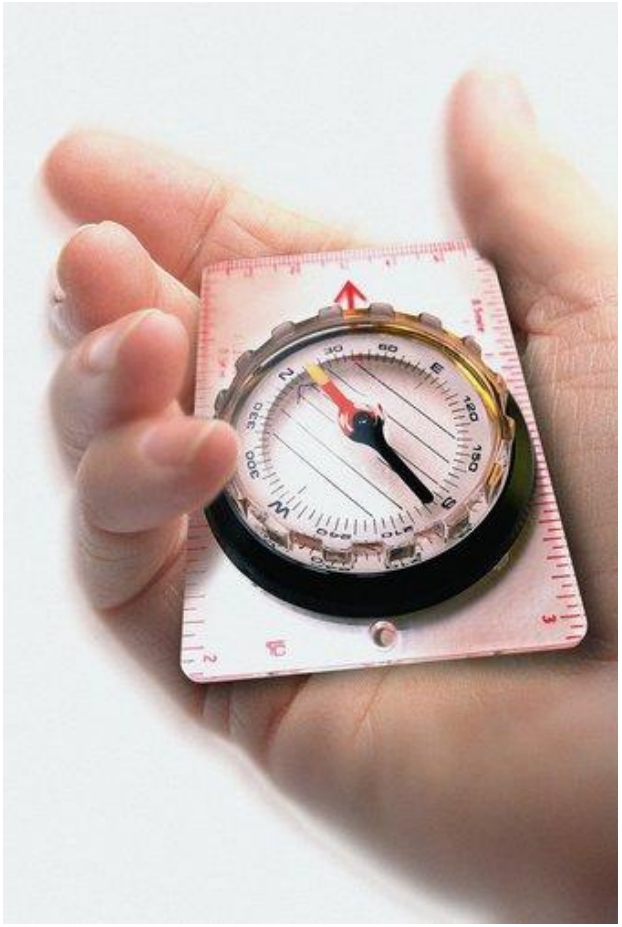
Course objectives

After completing this lesson, you should be able to do the following:



- **Monitor and administer undo**
- **Configure undo retention**
- **Guarantee undo retention**
- **Use undo advisor**
- **Describe the relationship between undo and transactions**
- **Size the undo tablespace**

Course topics

Course's plan:

- Concepts
- Managing Undo

Concepts

Preview

- Undo Data
- Transactions and Undo Data
- Storing Undo Information

Undo Data

What's Undo data?

- A copy of original, premodification, data
- Captured for every transaction that changes data
- Retained at least until the transaction is ended
- Used to support:
  - Rollback operations
  - Read-consistent
  - Recovery from failed transactions
  - Flashback queries

Undo Data

Undo data and Rollback data

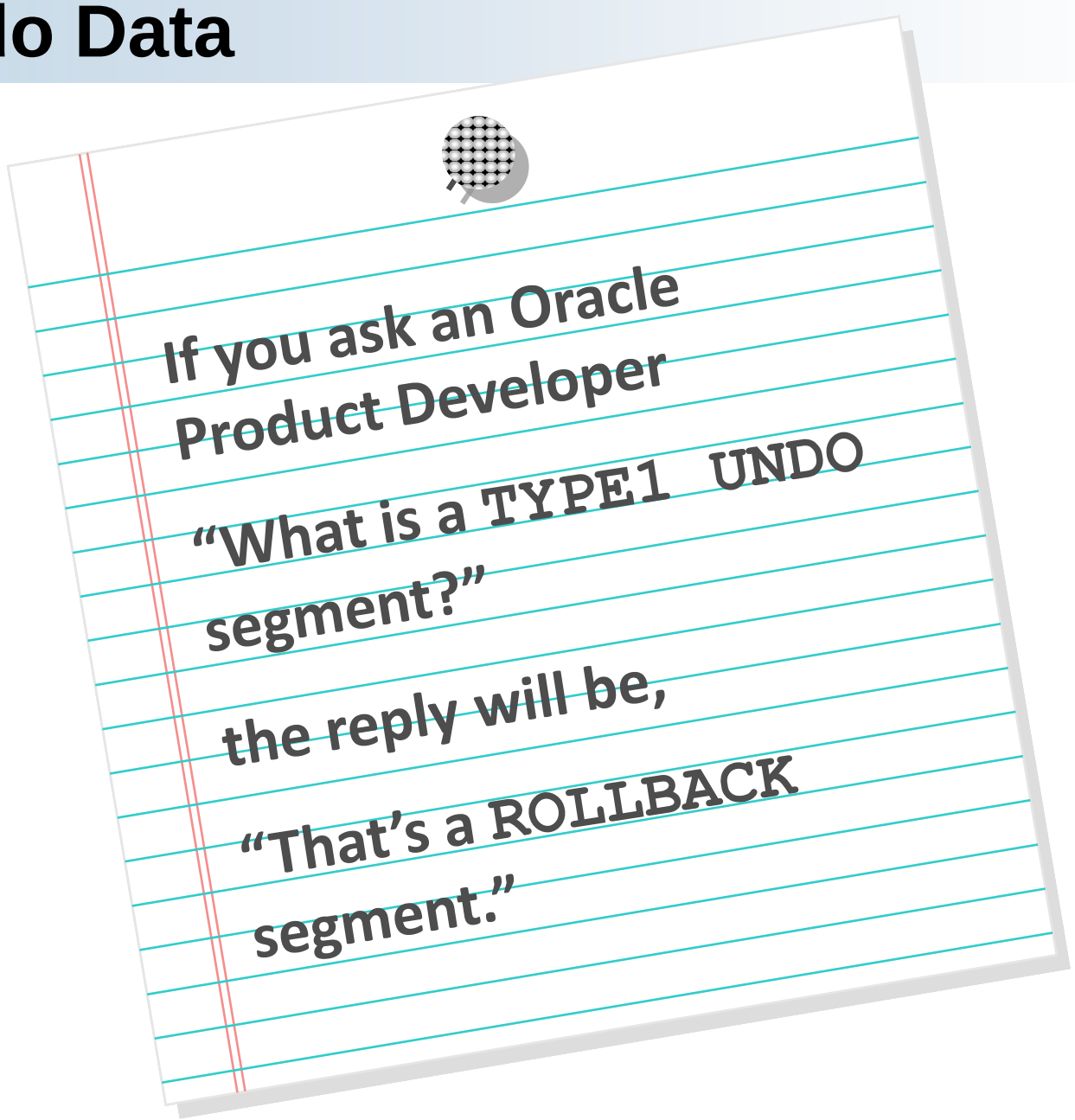
- Before Oracle 9*i*, “undo data” and “rollback data” were used interchangeably
- With Oracle 9*i*, Oracle introduced the undo segment as an alternative
- Observe the results of a query against **DBA_SEGMENTS**, there is still **ROLLBACK** segments.

```
SELECT DISTINCT segment_type
FROM dba_segments;
```

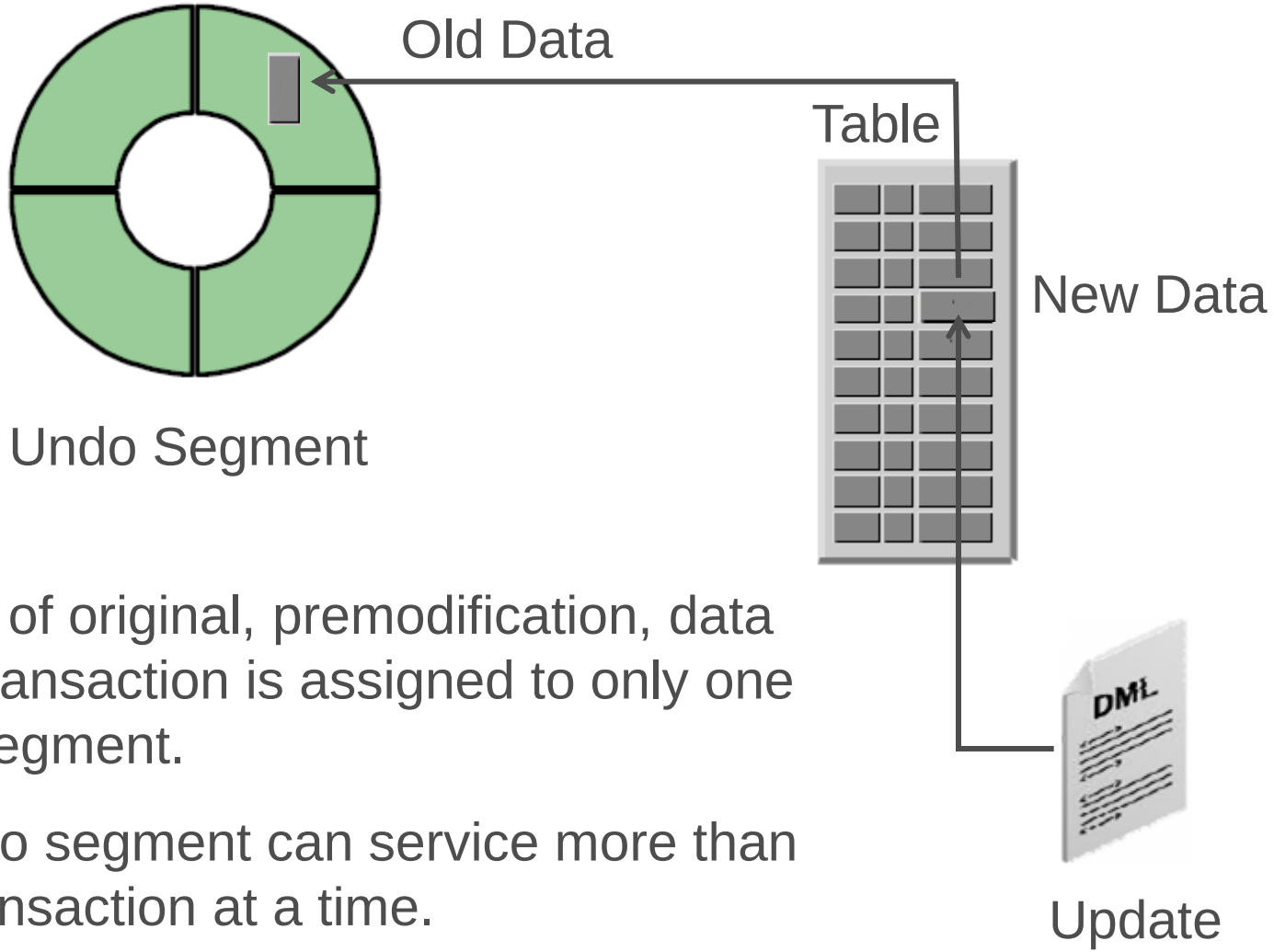
- Still there may not exist an undo tablespace, at creation time, Oracle creates a single old-fashioned rollback segment in the **SYSTEM** tablespace.
- All users transactions will use undo segments, listed in **DBA_SEGMENTS** as segment_type **TYPE2 UNDO**.

Concepts

Undo Data



Transactions and Undo Data



- A copy of original, premodification, data Each transaction is assigned to only one undo segment.
- An undo segment can service more than one transaction at a time.

Storing Undo Information

Undo Information Storage

Undo information is stored in undo segments, which are in turn stored in an undo tablespace. Undo tablespaces:

- Are only used for undo segments
- Have special recovery considerations
- May only be associated with a single instance, and an instance can only have one active undo tablespace at a time

Part 1 Summary

Undo Data

Transactions and Undo Data

Storing Undo Information

Part 1 Stop-and-think

Do you have any questions ?

Managing Undo

Preview

- Administering Undo
- Undo Retention
- Undo Tablespaces

Administering Undo

Undo usually requires little management. Areas to monitor include:

- Undo tablespace free space
- “Snapshot too old” errors

Administering Undo

Prevention on administration of undo

- Undo tablespace space errors
  - Size the undo tablespace properly
  - Ensure large transactions commit periodically
- “Snapshot too old” errors
  - Configure an appropriate undo retention interval
  - Size the undo tablespace properly
  - Consider guaranteeing undo retention

```
UNDO_MANAGEMENT=AUTO
UNDO_TABLESPACE=UNDOTBS1
```

Undo Retention

Configuring Undo Retention

Undo retention specifies (in seconds) the amount of already committed undo information to retain.

- Default value is 0 (automatic).
- Maximum value is 2^{32} seconds (more than 132 years).
- A setting of 0 indicates automatic undo retention mode.

```
UNDO_RETENTION=0
```

Undo Retention

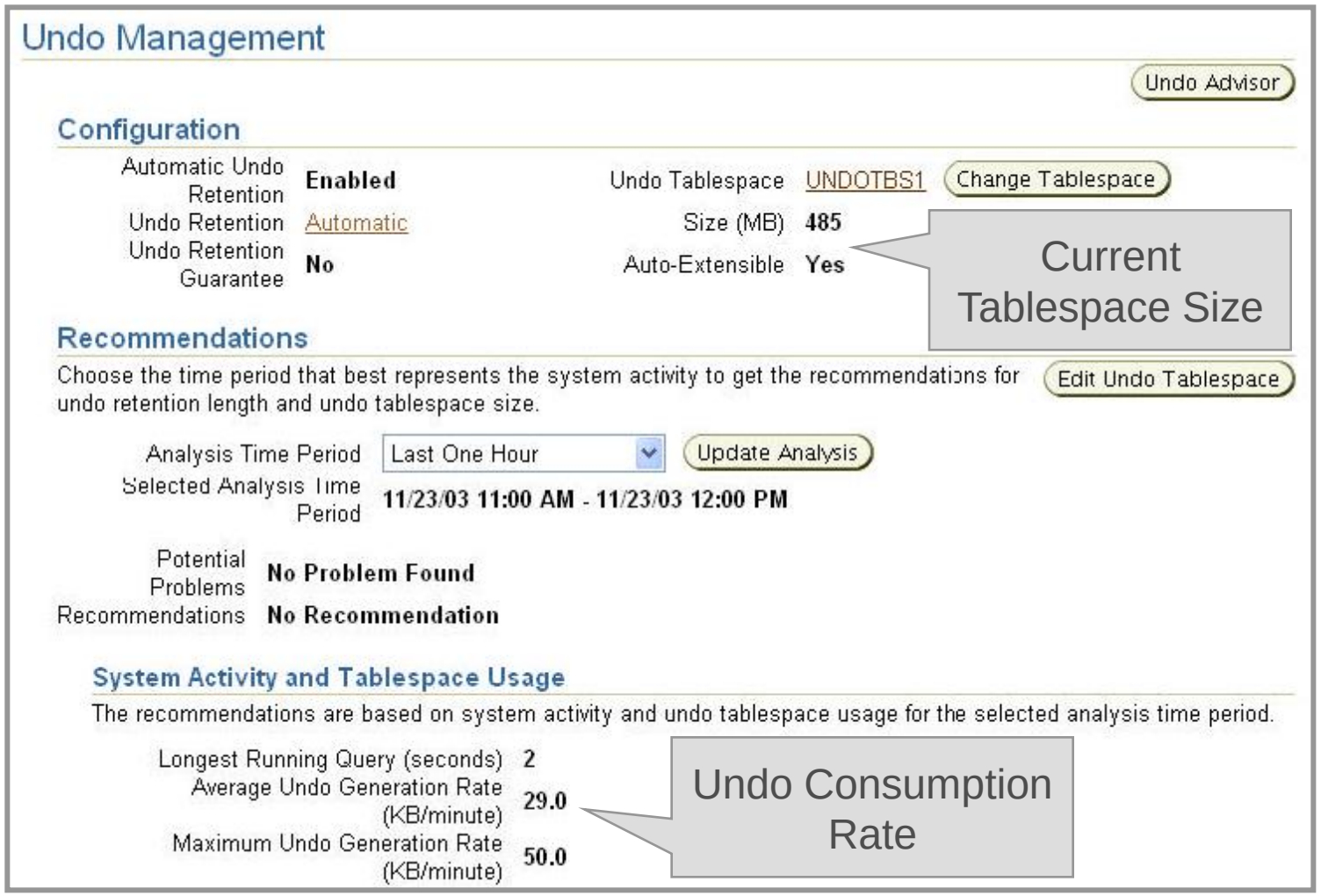
Guaranteeing Undo Retention

Committed undo information will be overwritten rather than cause transactions to fail for lack of undo space unless undo retention is “guaranteed.”

```
SQL> ALTER TABLESPACE undotbs1 RETENTION
GUARANTEE;
Tablespace altered.
SQL> SELECT contents, retention
   2 FROM dba_tablespaces
   3 WHERE TABLESPACE_NAME='UNDOTBS1';
CONTENTS  RETENTION
--------- -----------
UNDO      GUARANTEE
```

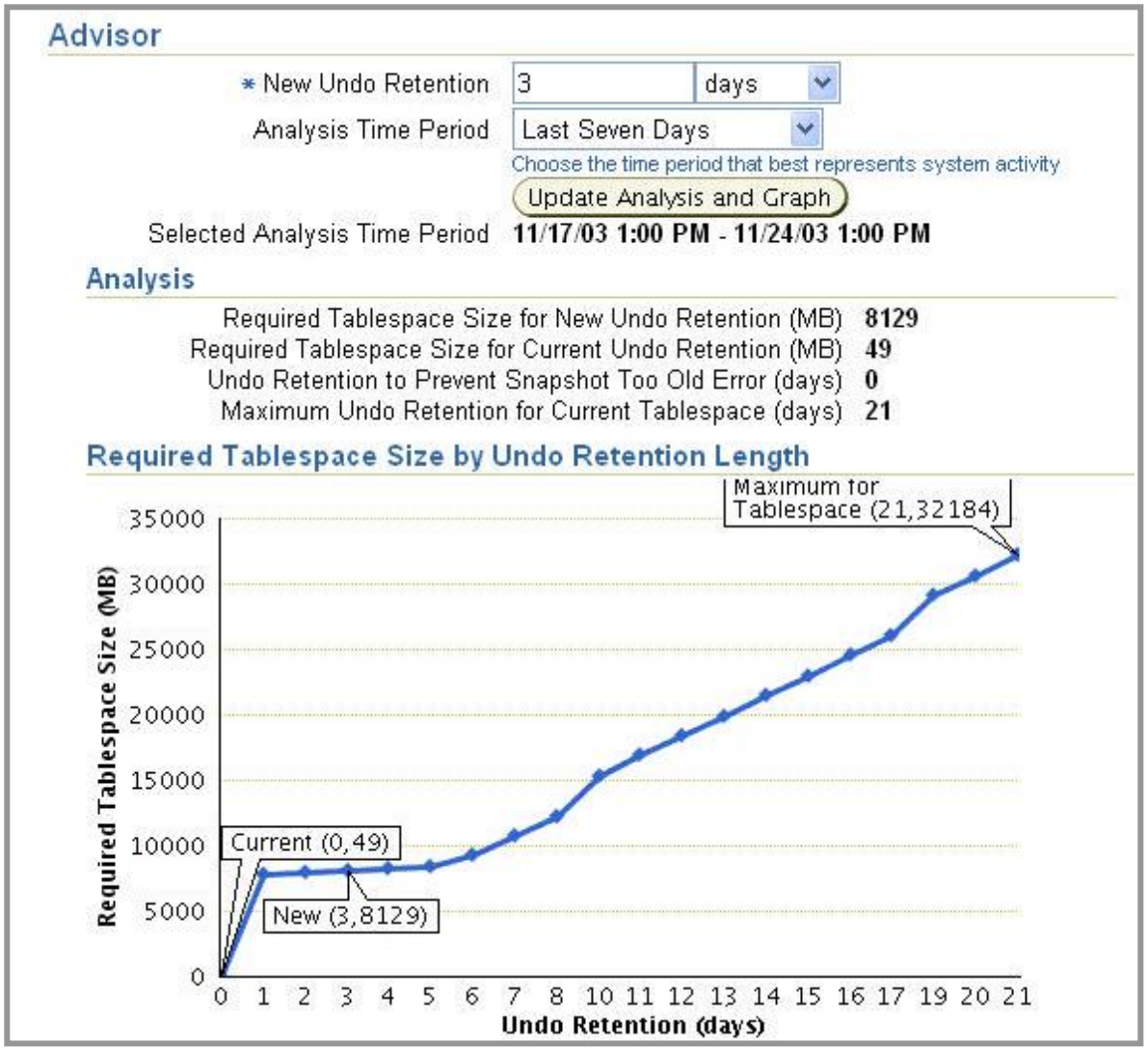
Undo Tablespaces

Sizing an undo tablespace



Undo Tablespaces

Using the Undo Advisor



Part 2 Summary

Administering Undo

Undo Retention

Undo Tablespaces

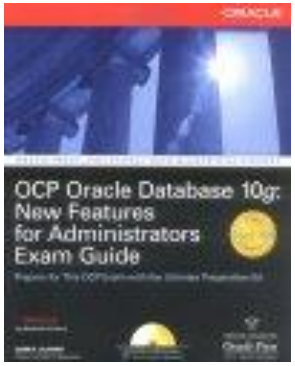
Part 2 Stop-and-think

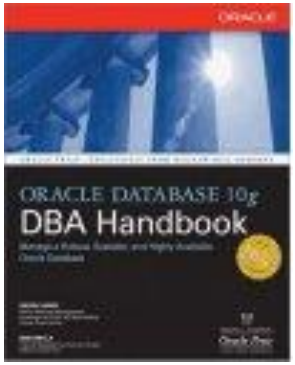
Do you have any questions ?

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

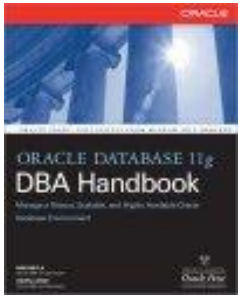
http://www.oracle.com

http://otn.oracle.com

Certifications

1Z0-042

1Z0-043



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Congratulations

You have successfully completed
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Oracle Technologies
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The end


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