

# 7

# Quản trị lưu trữ

The Oracle logo is centered at the bottom of the slide. It consists of the word "ORACLE" in a white, sans-serif, uppercase font, followed by a registered trademark symbol (®). The text is set against a light red, cloud-like background shape.

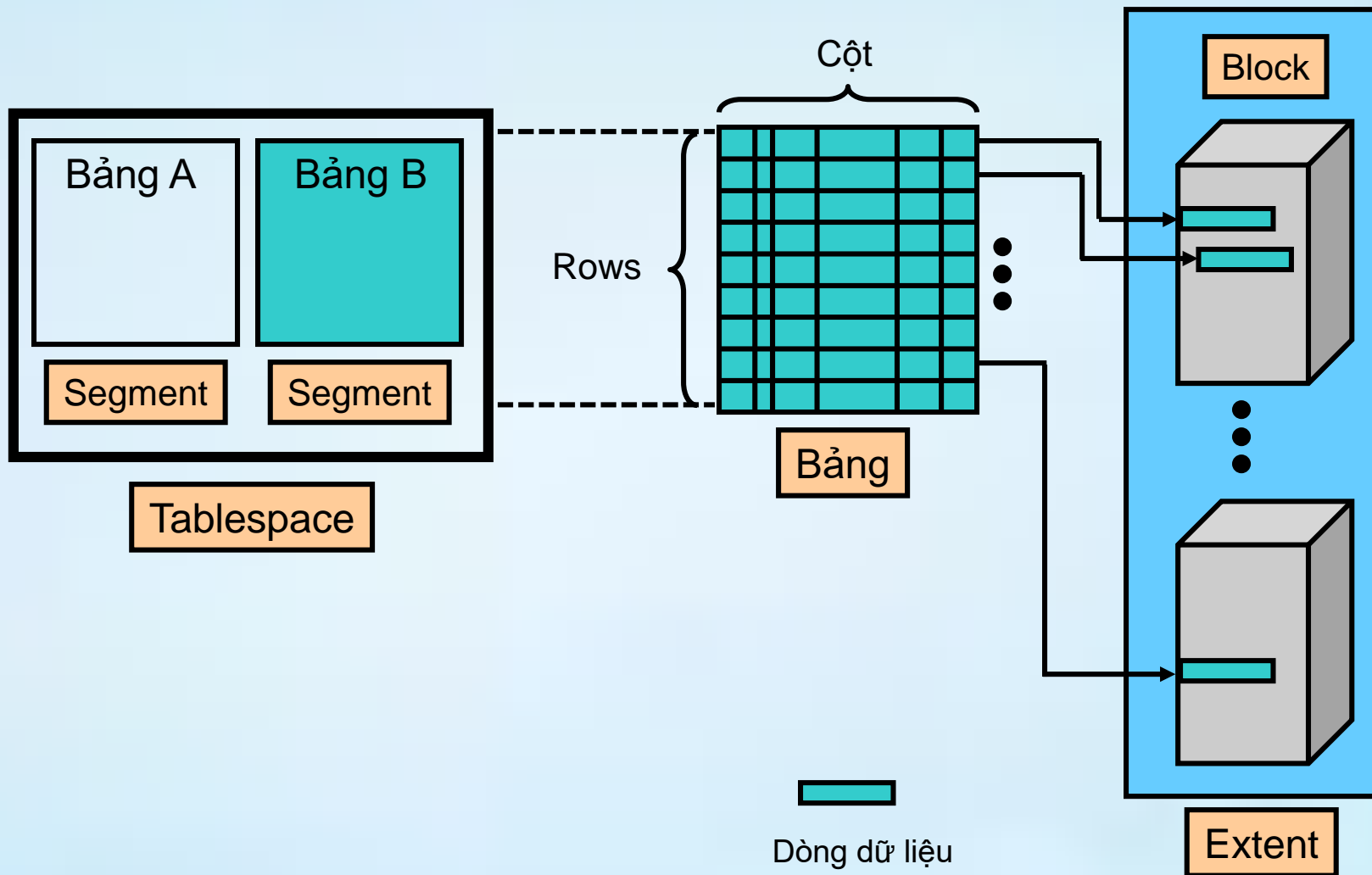
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# Mục tiêu

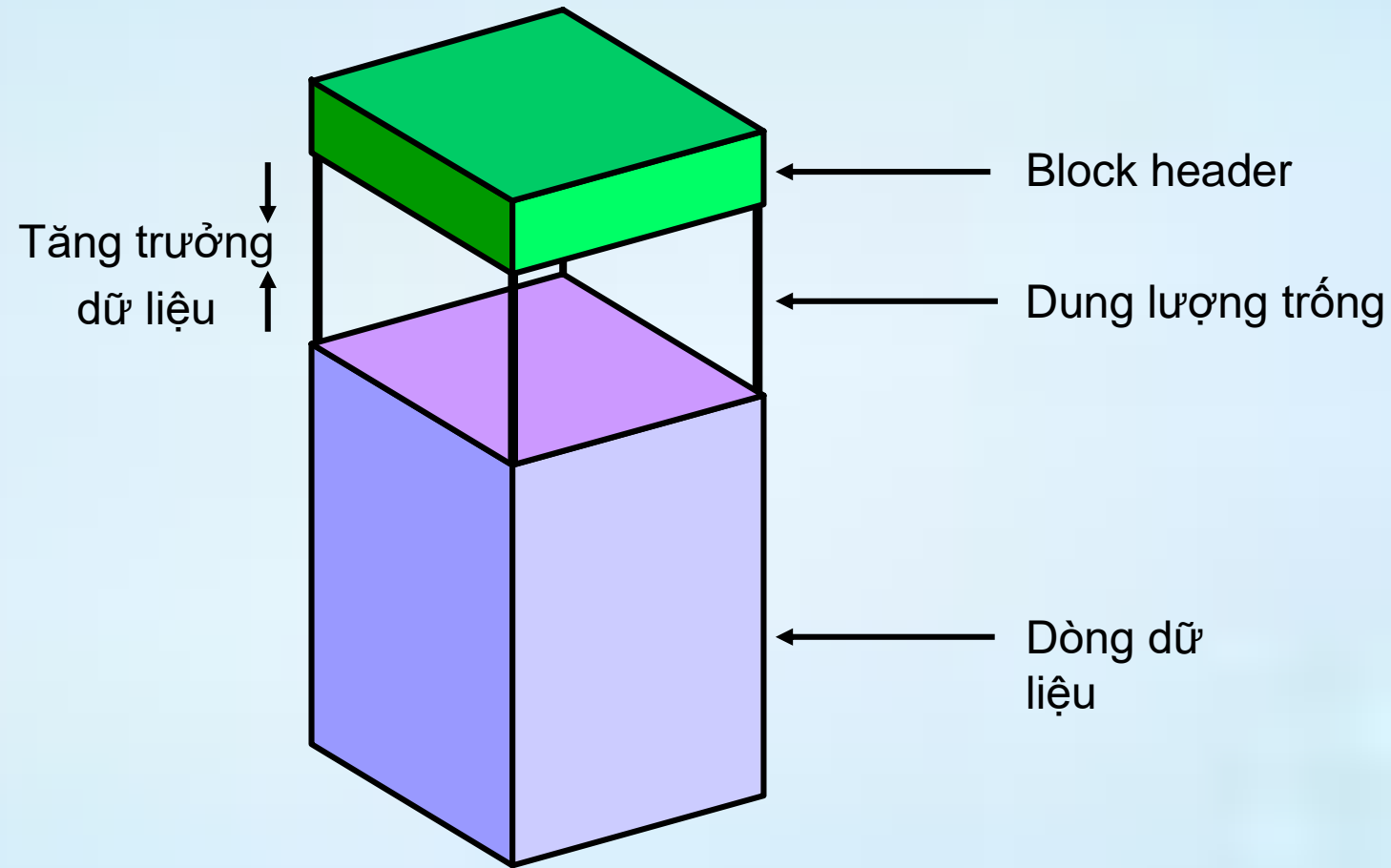
Sau bài học hôm nay, bạn có thể:

- Hiểu được cách lưu trữ dòng trong bảng với mức nhỏ nhất là block
- Tạo và quản lý tablespace
- Kiểm tra thông tin tablespace

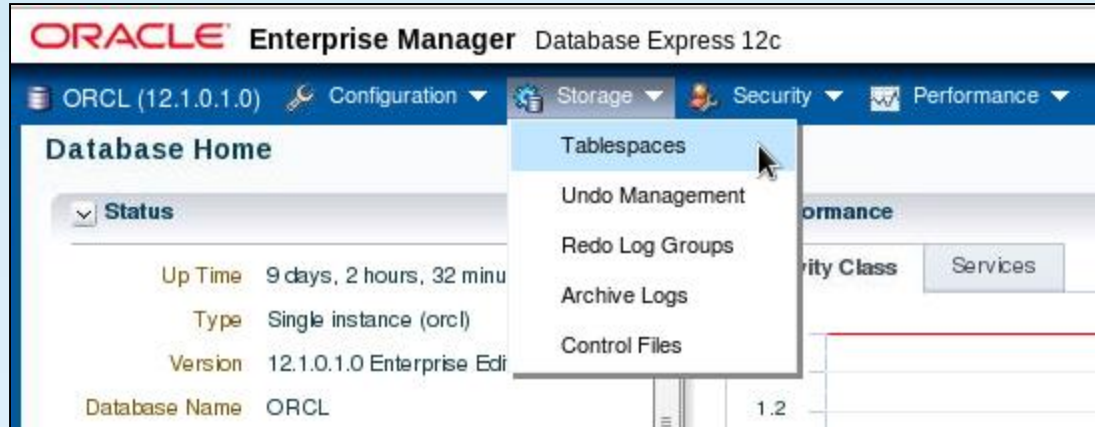
# Cơ chế lưu trữ của bảng



# Nội dung của Block



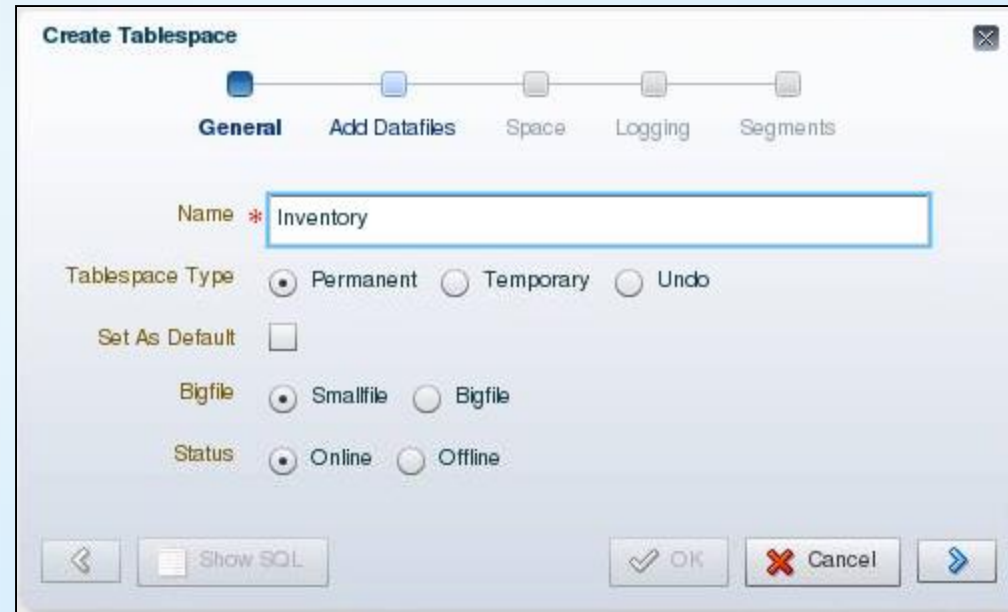
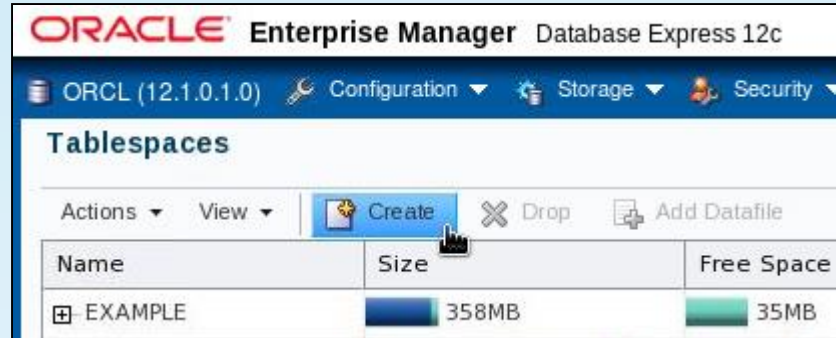
# Tìm hiểu cấu trúc lưu trữ



The screenshot shows the 'Tablespaces' page in Oracle Enterprise Manager Database Express 12c. The page displays a table of tablespaces with columns: Name, Size, Free Space, Used (%), Auto..., Max..., Status, Type, Group..., Auto..., and Directory. The table lists several tablespaces: EXAMPLE, SYSAUX, SYSTEM, TEMP, UNDOTBS1, and USERS. The 'TEMP' tablespace is highlighted, showing a size of 103MB and a free space of 102MB. The 'Used Space' for TEMP is 704MB.

Name	Size	Free Space	Used (%)	Auto...	Max...	Status	Type	Group ...	Auto...	Directory
EXAMPLE	358MB	35MB	90.2	✓	Unlimit	●	File		✓	/u01/app/oracle/oradata/...
SYSAUX	1GB	55MB	95	✓	Unlimit	●	File		✓	/u01/app/oracle/oradata/...
SYSTEM	800MB	6MB	99.3	✓	Unlimit	●	File			/u01/app/oracle/oradata/...
TEMP	103MB	102MB	1	✓	Unlimit	●	File			/u01/app/oracle/oradata/...
UNDOTBS1	150MB	137MB	8.9	✓	Unlimit	●	File			/u01/app/oracle/oradata/...
USERS	5MB	3MB	33.8	✓	Unlimit	●	File		✓	/u01/app/oracle/oradata/...

# Tạo tablespace



# Tạo tablespace mới

**Create Tablespace**

General **Add Datafiles** Space Logging Segments

Using Oracle-Managed Files ☐ ⓘ

Datafiles \* /u01/app/oracle/oradata/orcl/inventory01.dbf +

File Name
/u01/app/oracle/oradata/orcl/inventory01.d

File Size \* 100M ⓘ

Reuse Existing File ☐

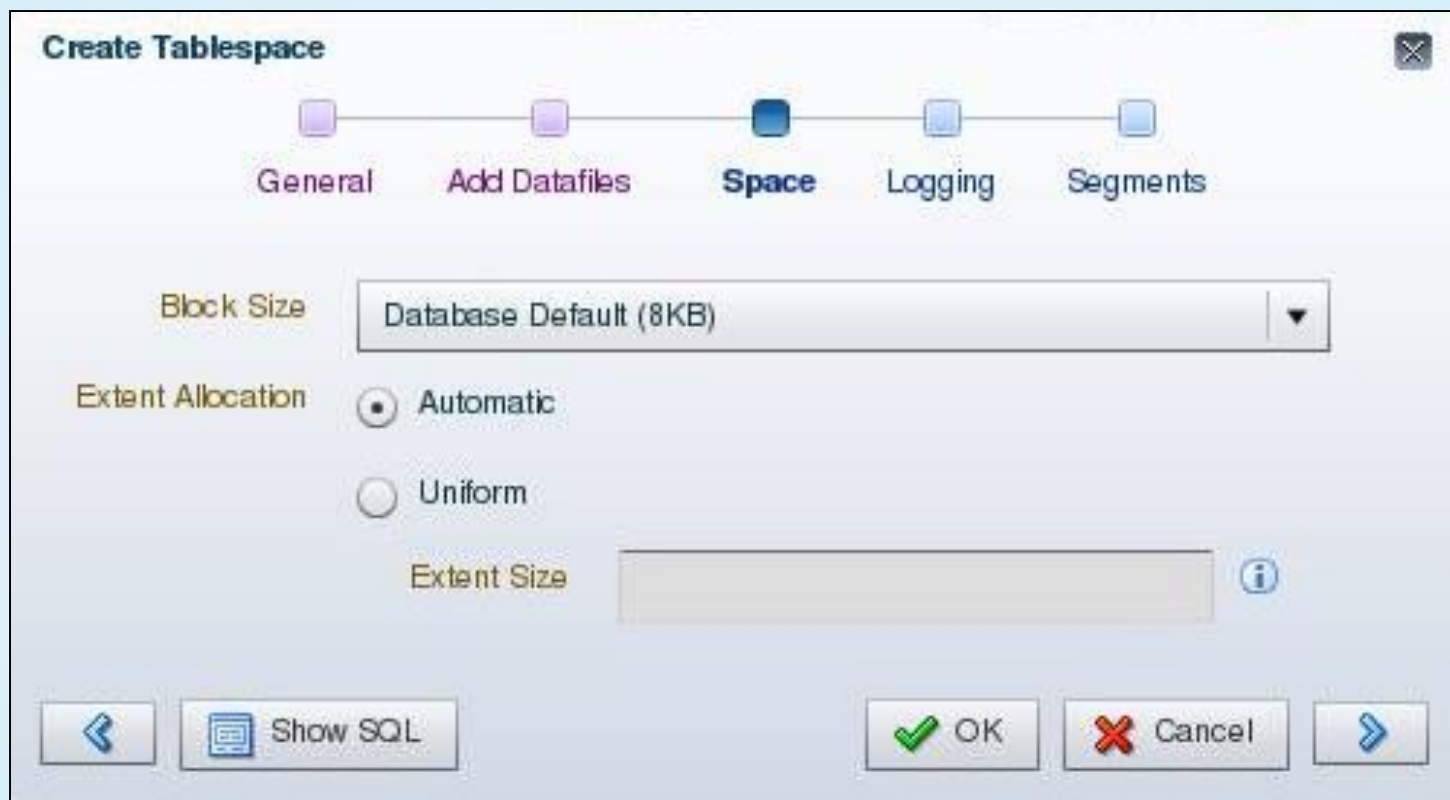
Auto Extend ☒ ⓘ

Increment 100M

Maximum File Size Unlimited

◀ Show SQL OK Cancel ▶

# Tạo tablespace mới



The image shows a 'Create Tablespace' dialog box with a tabbed interface. The 'Space' tab is selected. The 'Block Size' is set to 'Database Default (8KB)'. Under 'Extent Allocation', 'Automatic' is selected. The 'Extent Size' field is empty. At the bottom, there are buttons for 'Show SQL', 'OK', and 'Cancel'.

**Create Tablespace**

General Add Datafiles **Space** Logging Segments

Block Size Database Default (8KB)

Extent Allocation

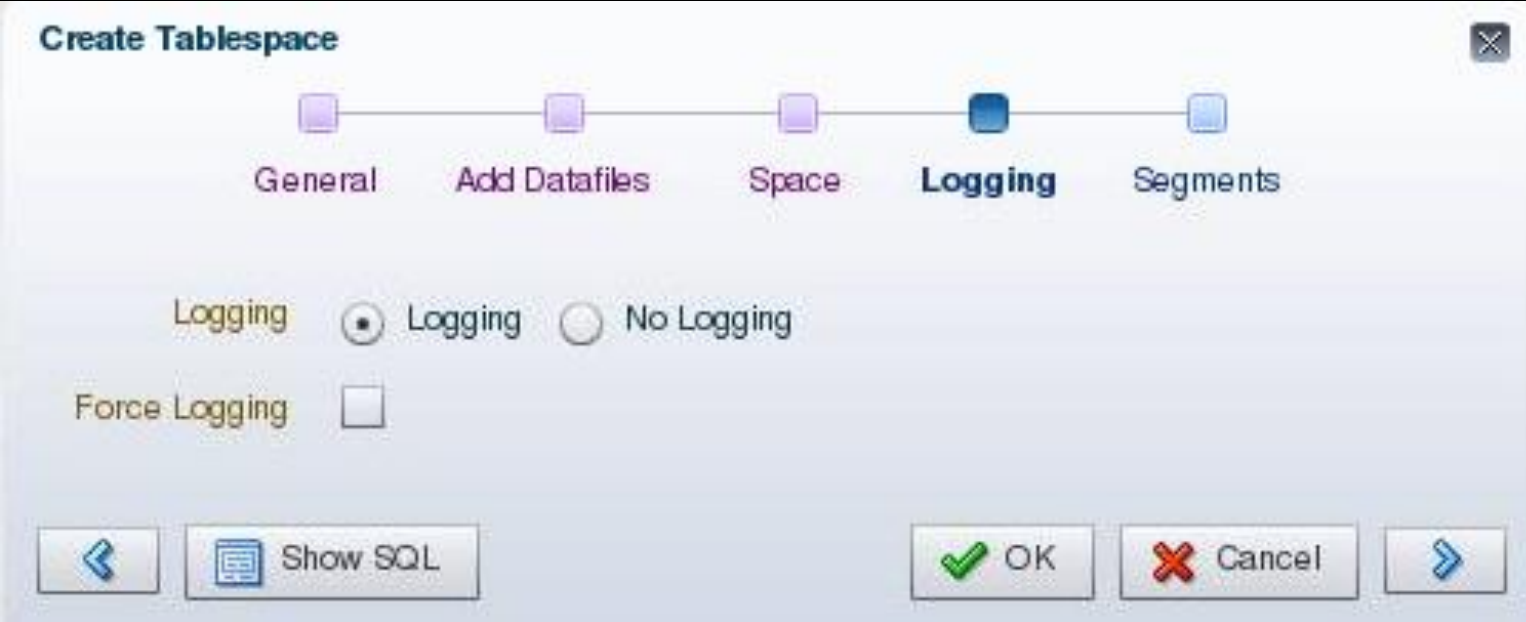
- ☒ Automatic
- ☐ Uniform

Extent Size

Show SQL OK Cancel



# Tạo tablespace mới



The image shows a 'Create Tablespace' dialog box with a tabbed interface. The tabs are 'General', 'Add Datafiles', 'Space', 'Logging', and 'Segments'. The 'Logging' tab is currently selected. In this tab, there are two radio buttons: 'Logging' (which is selected) and 'No Logging'. Below these is a checkbox labeled 'Force Logging' which is currently unchecked. At the bottom of the dialog, there are buttons for navigation (back and forward arrows), a 'Show SQL' button, and 'OK' and 'Cancel' buttons.

**Create Tablespace**

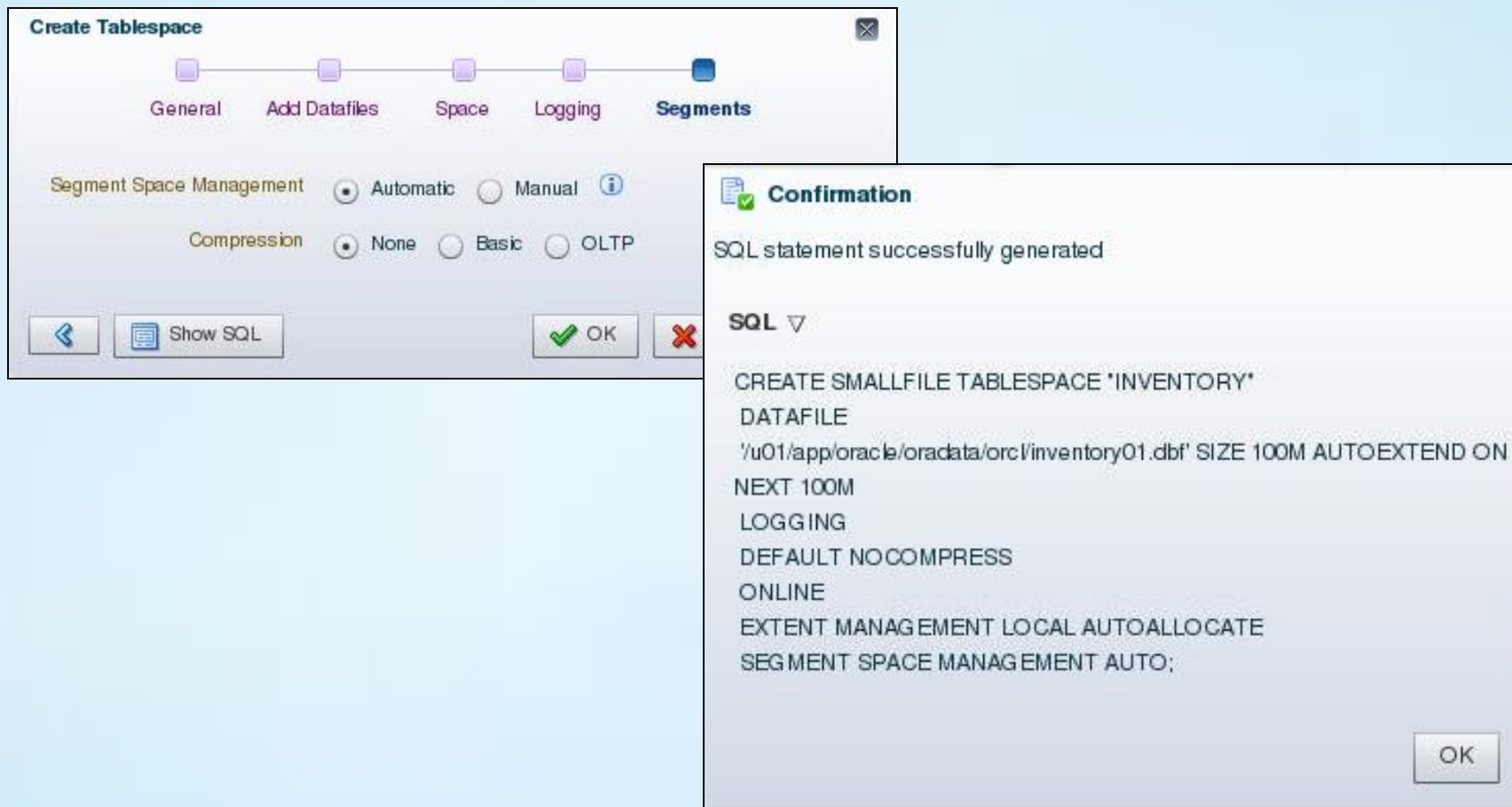
General Add Datafiles Space **Logging** Segments

Logging ☒ Logging ☐ No Logging

Force Logging ☐

◀ Show SQL OK Cancel ▶

# Tạo tablespace mới



# Tổng quan về tablespace mặc định

- EXAMPLE (optional)
- SYSAUX
- SYSTEM
- TEMP
- UNDOTBS1
- USERS

ORACLE Enterprise Manager Database Express 12c

ORCL (12.1.0.1.0) Configuration Storage Security Performance

Help SYSTEM Log Out

EDRSR11P1

Page Refreshed 11:12:01 AM GMT+00

### Tablespaces

Actions View Create Drop Add Datafile Permanent Tablespace Name

Name	Size	Free Space	Used (%)	Auto...	Max...	Status	Type	Group ...	Auto...	Directory
EXAMPLE	358MB	35MB	90.2	✓	Unlimit	✓	Tablespace		✓	/u01/app/oracle/oradata/...
SYSAUX	1GB	55MB	95	✓	Unlimit	✓	Tablespace		✓	/u01/app/oracle/oradata/...
SYSTEM	800MB	6MB	99.3	✓	Unlimit	✓	Tablespace			/u01/app/oracle/oradata/...
TEMP	103MB	102MB	1	✓	Unlimit	✓	Temporary			/u01/app/oracle/oradata/...
UNDOTBS1	150MB	137MB	8.9	✓	Unlimit	✓	Undo			/u01/app/oracle/oradata/...
USERS	5MB	3MB	33.8	✓	Unlimit	✓	Tablespace		✓	/u01/app/oracle/oradata/...

# Thay đổi Tablespace

ORACLE Enterprise Manager Database Express 12c

ORCL (12.1.0.1.0) Configuration Storage Security Performance

## Tablespaces

Actions View Create Drop Add Datafile

Create Drop

Set Status  
Tablespace Groups  
Add Datafile  
Edit Auto Extend  
Resize  
Set As Default

Place Online  
Take Offline  
Make Readonly  
Make Writable

Size	Free Space	Used (%)
358MB	35MB	90.2
1GB	55MB	95
1GB	6MB	99.3
	102MB	1
	137MB	8.9
5MB	3MB	33.8

# Thêm một data file vào tablespae

ORACLE Enterprise Manager Database Express 12c

ORCL (12.1.0.1.0) Configuration Storage Security Performance

### Tablespaces

Actions View Create Drop Add Datafile

Create Drop Set Status Tablespace Groups Add Datafile Edit Auto Extend Resize Set As Default

	Size	Free Space	Used (%)
	358MB	35MB	90.2
	1GB	55MB	95
	800MB	6MB	99.3
	103MB	102MB	1
	150MB	137MB	8.9
	5MB	3MB	33.8

### Add Datafiles to Tablespace USERS

Using Oracle-Managed Files ☐ [i](#)

Datfiles \*  [+](#) [-](#)

File Name

File Size \*  [i](#)

Reuse Existing File ☐

Auto Extend ☒ [i](#)

Increment

Maximum File Size

Show SQL OK Cancel



# Thay đổi Data File

ORACLE Enterprise Manager Database Express 12c

ORCL (12.1.0.1.0) Configuration Storage Security Performance

### Tablespaces

Actions View Create Drop Add Datafile

Create Drop Set Status Tablespace Groups Add Datafile Edit Auto Extend Resize Set as Default

Size	Free Space	Used (%)
358MB	35MB	90.2
1GB	59MB	94.8
6MB	102MB	99.3
5MB		
5MB		

#### Auto Extend Setting of Datafile users01.dbf

Auto Extend ☒ *i*

Increment 1.25M

Maximum File Size Unlimited

Show SQL OK Cancel

#### Resize Datafile users01.dbf

Size \* 5M *i*

Show SQL OK Cancel

# Xóa Tablespace

ORACLE Enterprise Manager Database Express 12c

ORCL (12.1.0.1.0) Configuration Storage Security Performance

### Tablespaces

Actions View Create **Drop** Add Datafile

Name	Size	Free Space	Used (%)
EXAMPLE	358MB	35MB	90.2
SYSAUX	1GB	59MB	94.8
SYSTEM	800MB	6MB	99.3
TEMP	103MB	102MB	1
UNDOTBS1	150MB	120MB	20.3
USERS	5MB	3MB	33.8

**Drop Tablespace EXAMPLE**

☒ Drop Contents

☒ Drop Datafiles

☒ Drop Constraints

Show SQL

OK Cancel

# Kiểm tra thông tin Tablespace

```
SQL> SELECT tablespace_name, status, contents, logging,  
2 extent_management, allocation_type,  
3 segment_space_management  
4 FROM dba_tablespaces;
```

TABLESPACE_NAME	STATUS	CONTENTS	LOGGING	EXTENT_MAN	ALLOCATIO	SEGMENT
SYSTEM	ONLINE	PERMANENT	LOGGING	LOCAL	SYSTEM	MANUAL
SYSAUX	ONLINE	PERMANENT	LOGGING	LOCAL	SYSTEM	AUTO
UNDOTBS1	ONLINE	UNDO	LOGGING	LOCAL	SYSTEM	MANUAL
TEMP	ONLINE	TEMPORARY	NOLOGGING	LOCAL	UNIFORM	MANUAL
USERS	ONLINE	PERMANENT	LOGGING	LOCAL	SYSTEM	AUTO
EXAMPLE	ONLINE	PERMANENT	NOLOGGING	LOCAL	SYSTEM	AUTO

```
SQL> SELECT file_name, file_id, tablespace_name  
2 FROM dba_data_files;
```

FILE_NAME	FILE_ID	TABLESPACE_NAME
/u01/app/oracle/oradata/orcl/system01.dbf	1	SYSTEM
/u01/app/oracle/oradata/orcl/sysaux01.dbf	3	SYSAUX
/u01/app/oracle/oradata/orcl/users01.dbf	6	USERS
/u01/app/oracle/oradata/orcl/example01.dbf	2	EXAMPLE
/u01/app/oracle/oradata/orcl/undotbs01.dbf	4	UNDOTBS1



# File quản lý bởi Oracle (OMF)

Specify file operations in terms of database objects rather than file names.

Tham số	Mô tả
DB_CREATE_FILE_DEST	Thư mục lưu trữ của data file và temporary file
DB_CREATE_ONLINE_LOG_DEST_n	Thư mục lưu trữ redo log file và control file
DB_RECOVERY_FILE_DEST	Thư mục lưu trữ cho phạm vi khôi phục dữ liệu nhanh chóng (FRA)

Ví dụ:

```
SQL> ALTER SYSTEM
  2  SET DB_CREATE_FILE_DEST='/u01/app/oracle/oradata';
SQL> CREATE TABLESPACE tbs_1;
```

# Câu hỏi

1 CSDL có thể chứa cả data file do Oracle quản lý và tự quản lý?

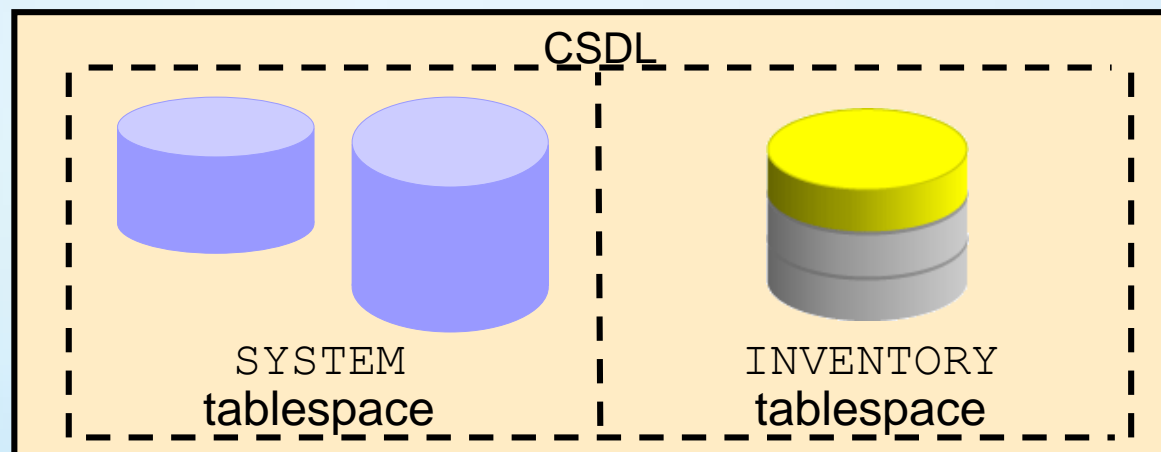
a. Đúng.

b. Sai

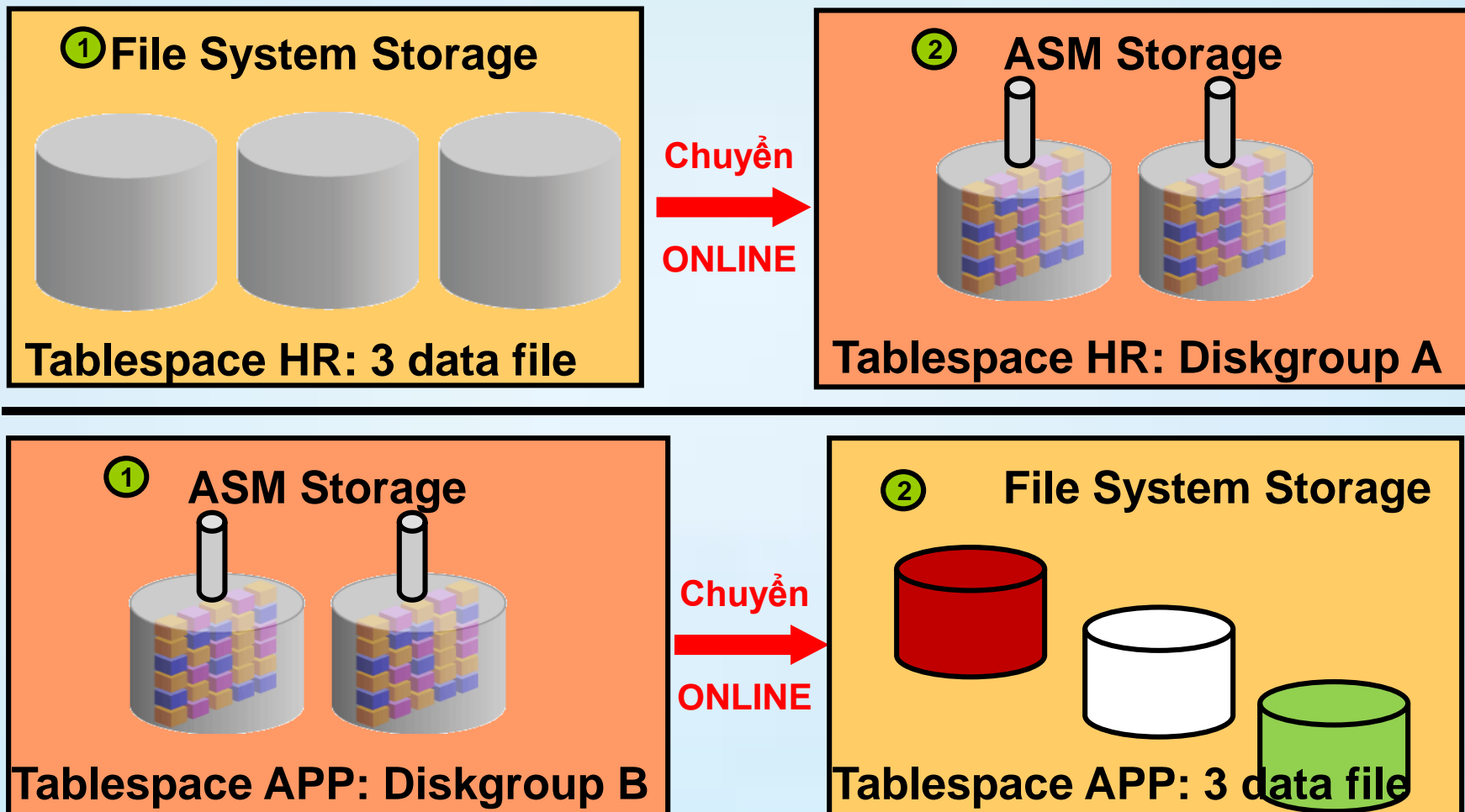
# Tăng trưởng dung lượng CSDL

CSDL tăng dung lượng theo các cách sau:

- Tạo tablespace mới
- Thêm mới datafile vào tablespace
- Tăng cỡ của data file.
- Đặt data file ở chế độ tăng tự động



# Chuyển hoặc đổi tên Online Data File



# Chuyển hoặc đổi tên Online Data File

- Đặt lại vị trí lưu trữ của online data file:

```
ALTER DATABASE MOVE DATAFILE '/disk1/myexample01.dbf'  
TO '/disk2/myexample01.dbf';
```

- Copy data file from từ file system sang ASM:

```
ALTER DATABASE MOVE DATAFILE '/disk1/myexample01.dbf'  
TO '+DiskGroup2' KEEP;
```

- Đổi tên online data file:

```
ALTER DATABASE MOVE DATAFILE '/disk1/myexample1.dbf'  
TO '/disk1/myexample01.dbf';
```

# Tổng kết

Trong bài học này, bạn đã được học các nội dung:

- Hiểu được cách lưu trữ dòng dữ liệu trong bảng với mức nhỏ nhất của dữ liệu là block
- Tạo và quản lý tablespace
- Kiểm tra thông tin tablespace

# Thực hành

Thực hành các nội dung sau:

- Tạo tablespace
- Kiểm tra thông tin tablespace