SECTION – 3
DB2 ARCHITECTURE

Lecture 7

DB2 Storage Model

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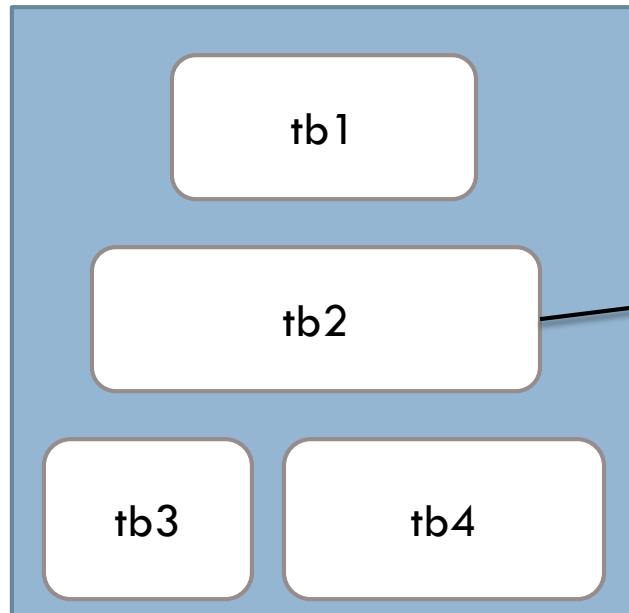- Directory Hierarchy – OS File System
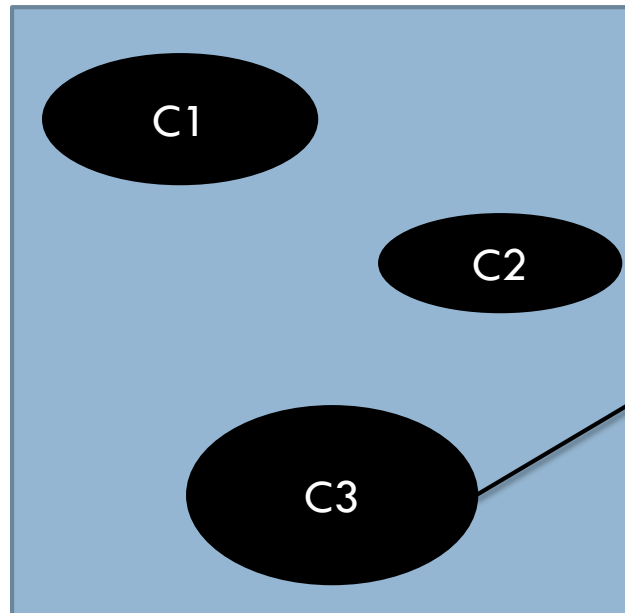
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DB2 Storage Model

To understand the DB2 storage model, we need to understand the following architecture:

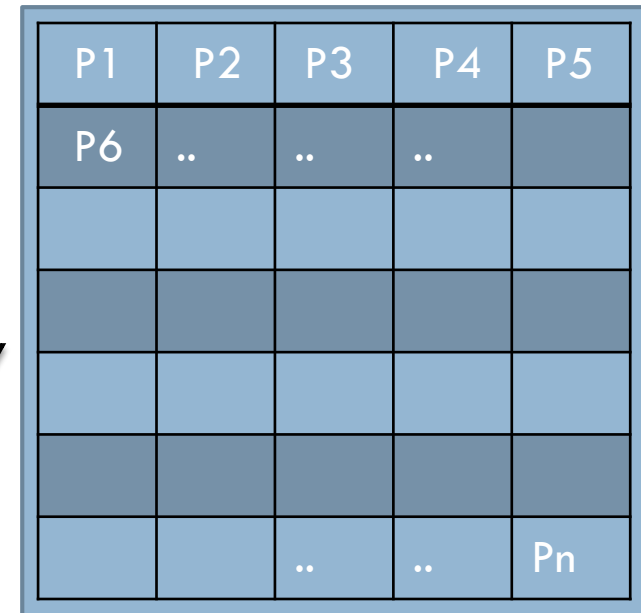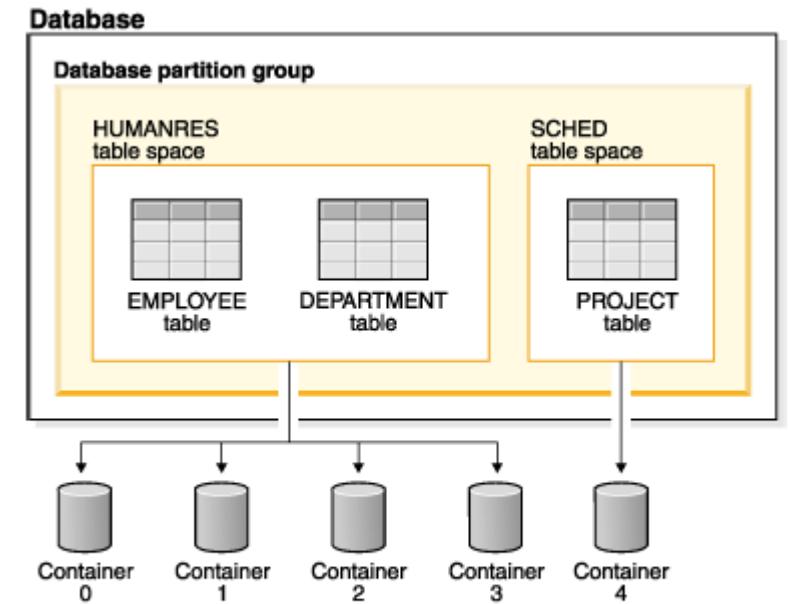# DB2 Tablespaces : Characteristics

- Tablespaces are logical objects between the logical tables and physical container

- All tables, indexes, and other data are stored in a table space

- A tablespace is made up of containers

- Containers are made up of pages

- Page is the lowest unit of storage in DB2

- Page sizes are in denominations of
  - 4K, 8K, 16K and 32K

Database
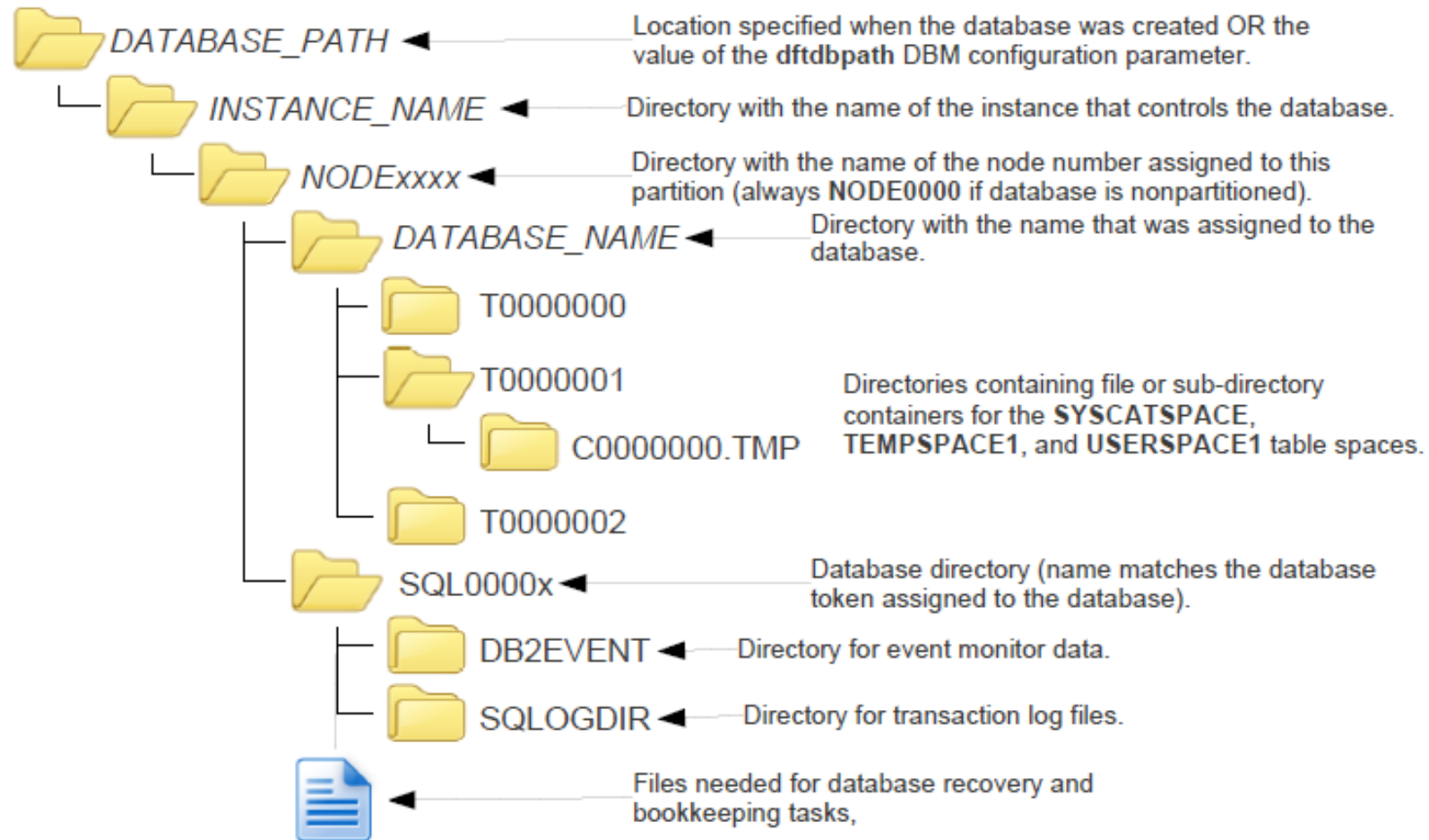
Database partition group

HUMANRES table space

EMPLOYEE table   DEPARTMENT table

SCHED table space

PROJECT table

Container 0   Container 1   Container 2   Container 3   Container 4

Containers can be files, directories or raw devices

Directory Hierarchy – OS File System

Typical Directory Hierarchy Tree

DATABASE_PATH ◄ — Location specified when the database was created OR the value of the **dftdbpath** DBM configuration parameter.

INSTANCE_NAME ◄ — Directory with the name of the instance that controls the database.

NODExxxx ◄ — Directory with the name of the node number assigned to this partition (always **NODE0000** if database is nonpartitioned).

DATABASE_NAME ◄ — Directory with the name that was assigned to the database.

T0000000

T0000001 — Directories containing file or sub-directory containers for the **SYSCATSPACE**, **TEMPSPACE1**, and **USERSPACE1** table spaces.

C0000000.TMP

T0000002

SQL0000x ◄ — Database directory (name matches the database token assigned to the database).

DB2EVENT ◄ — Directory for event monitor data.

SQLOGDIR ◄ — Directory for transaction log files.

◄ — Files needed for database recovery and bookkeeping tasks,

Required Tablespaces in DB2

Each database must have a minimal set of table spaces that are used for storing system, user and temporary data:

1) SYSCATSPACE (0) : contains the metadata

2) TEMPSPACE (1)   : system temporary tablespace used for storing intermediate results of SQL operations

3) USERSPACE1 (2)   : used to store user created data

Summary

Let's summarize this lecture :

➢ Databases are made up of tablespaces

➢ Tablespaces are the logical layer b/w logical tables and physical containers

➢ Tablespaces are made up of containers

➢ Containers are made up of pages (4/8/16/32 k)

➢ OS file system directories for DB2

➢ 3 tablespaces required at a minimum