**Configuration**

Get configuration (global) db2 get dbm cfg

Get configuration (database) db2 get db cfg for <DATABASE\_NAME>

Change system variable db2 update dbm using <PARAMETER> <VALUE>

Display changed profile registry var. db2set -all

Display all db2 registry variables db2set -lr

Change specific registered variable db2set <PARAMETER>=<VALUE>

**Instance**

Create instance db2icrt <INSTANCE\_NAME>

Start instance db2start

List all instances db2ilist

Get current instance db2 get instance

Change / set db2 instance set db2instance=<INSTANCE\_NAME>

**Database**

Create database db2 create db <DATABASE\_NAME>

List all databases db2 list db directory

Delete database db2 drop database <DATABASE\_NAM>

Connect to database db2 conntect to < DATABASE \_NAME>

Disconnect from database db2idrop <DATABASE\_NAME>

List all connections db2 list applications

**Nodes**

List nodes db2 list node directory

**Connect to outside database**

1. Step: db2set db2comm=TCPIP
2. Step: db2 update dbm cfg using svcename 50002 #port
3. Step db2 update dbm cfg using svcneame itnt0002.hs-esslingen.de #host

**Tables**

List tables list tables for <PARAMETER> <VALUE>

Describe table describe table <TABLE\_NAME>

Select column select <COLUMN\_NAME> from <TABLE\_NAME>

Select multiple columns select <1.Value>, <2.VALUE> from <TABLE\_NAME>

Condition select <1.Value>, <n. Value> from <TABLE\_NAME> where <PARAMETER\_NAME>=<VALUE>

Order ... order by <VALUE>

Change name (select) select <COLUMN\_NAME> as <VALUE>

**Lock types**

Repeatable Read (RR) All accessed rows / pages are locked. Held until commit. Prevents other reads / changes

Read Stability (RS) Like RR, but allows inserts from other users

Cursor Stability (CS) Sets lock only for current row. Releases when moved to another row

Uncommitted Read (UR) Places no lock

**Isolation level phenomena**

Lost Update Commit gets overwritten by a later commit

Dirty Read Reads a row that has not been / won’t be committed and uses this incorrect data in further processing

Non-repeatable read Read command returns less data on second occasion (e.g. update command in between)

Phantom Read Read command returns more data on second occasion (e.g. update command in between)

JCCD driver required for connection to database

**Table Space Types**

REGULAR For user Tables

LARGE For user Tables. Can separate out Large Object data, index, XML into own t-space

TEMPORARY

* SYSTEM TEMPORARY Used for internal db2 operations (ex. sorts)
* USER TEMPORARY Used for USER temporary tables (in-memory)

System Managed Storage (**SMS**) -only regular - easy to manage

-cannot split index / large objects

-files grow dynamically

Database Managed Storage (**DMS**) -can place index / table / large objects in separate table spaces

-“large” table space type is the default

Managed by Automatic Storage -best of both previous systems

Table space set volumes on disks, hold data stored in tables, logical layer, a place to store tables, abstracts the details of physical storage

Index space storage structure, holds single index

Index consists of one or more columns in order and pointers to rows in the table, partial duplicate of existing data

Pre-fetch number of preloaded pages by db2

Extent size number of pages written to one container before writing to the next one

Page logical view of database, consists of tables, indexes and other standard objects

Large Object (**LOB**) CLOB -> Character large Object

DBCLOB -> Double-byte character large o.

BLOB -> Binary large Object

**Commands example:**

-CREATE DATABASE DB1 AUTOMATIC STORAGE YES

-CREATE DATABASE DB3 ON /data/path1, /data/path2

-CREATE TABLESPACE TS2 MANAGED BY AUTOMATIC STORAGE

-CREATE TEMPORARY TABLESPACE TEMPTS

-CREATE USER TEMPORARY TABLESPACE USRTMP MANAGED BY AUTOMATIC STORAGE

-CREATE TABLESPACE TS1 INITIALSIZE 500 K INCREASESIZE 100 K MAXSIZE 100 M

**Security**

**Privileges**

**explicit** using GRANT / REVOKE for a user or group

**implicit** automatically granted privileges by db2 when using certain commands

**indirect** when using packages, the performing user only needs EXECUTE privilege

grant control on table <table\_name> to user <user\_name>

revoke control on table <table\_name> from user <user\_name>

Note: This only revokes explicit privileges

revoke all privileges on table <table\_name> from user <user\_name>

**Instance-level Authorities:**

SYSADM Manages instance as a whole

SYSCTRL Administers database manager instance

SYSMAINT Maintains databases within an instance

SYSMON Monitors the instance and its databases

**Database-level Authorities:**

DBADM

SECADM

SQLADM

WLMADM

EXPLAIN

ACCESSCTRL

DATAACCESS

Roles: User-defined database-level authorities

PUBLIC (default: CONNECT, CREATE TAB, IMPLICIT\_SCHEMA, BINDADD)

Label-based access control (LBAC) Limits access to database columns

Extended security Using Windows security privileges

Trusted context (f.e. by trusting an IP-address -> user gets role automatically when connecting with that IP-address)