

IBM DB2 at UW

(a mini-tutorial)

by

David Toman

University of Waterloo

List of Slides

- 1
- 2 DB2: what is it?
- 3 First Steps
- 4 First Steps (example)
- 5 Connecting to a Database
- 6 Executing Queries
- 7 What tables are there?
- 8 Is that all?
- 9 HELP!
- 10 More HELP!
- 11 More (More HELP!)
- 12 Scripts

DB2: what is it?

DB2 is a relational DBMS and a set of tools:

- a command-line interface to SQL
- an ESQL preprocessor for C language

This tutorial covers (briefly):

- How do I run it?
- Useful hints
- What if something goes wrong?

DB2 documentation:

will be available on-line
from the course web page

First Steps

- DB2 is **only** available on `rees.math`
- your environment should be set up correctly; using:

```
rees$ source ~db2cs338/sqlllib/db2profile
```

essentially:

```
# DB2 STUFF
```

```
DB2INSTANCE=db2; export DB2INSTANCE  
INSTHOME=/usr/db2
```

```
PATH=$PATH:/usr/db2/sqlllib/bin
```

```
PATH=$PATH:/usr/db2/sqlllib/adm
```

```
PATH=$PATH:/usr/db2/sqlllib/misc
```

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:
```

```
                /usr/db2/sqlllib/lib
```

```
LC_CTYPE=""; export LC_CTYPE
```

- you don't need any DB2 password

First Steps (example)

```
@algonquin[159]% rlogin rees
Last login: algonquin.uwater (pts/0) Sun May  7
[...]
rees$ source ~db2/sqlllib/db2profile
rees$ db2
```

```
(c) Copyright IBM Corporation 1993,1997
Command Line Processor for DB2 SDK 6.1.0
```

You can issue database manager commands and SQL statements from the command prompt. For example:

```
db2 => connect to sample
db2 => bind sample.bnd
```

```
[...]
```

For more detailed help, refer to the Online Reference Manual.

```
db2 =>
```

Connecting to a Database

```
db2 => connect to cs338
```

Database Connection Information

```
Database server          = DB2/SUN 7.2.0
SQL authorization ID     = DAVID
Local database alias     = CS338
```

```
db2 =>
```

Executing Queries

SQL queries and update requests can be entered directly at the `db2 =>` prompt.

Example:

```
db2 => select aid,name \  
db2 (cont.) => from david.author
```

AID	NAME
1	Toman, David
2	Chomicki, Jan
3	Saake, Gunter

```
3 record(s) selected.
```

ending line with `\` allows entering long queries
ending with (`<cr>`) executes the query.

What tables are there?

```
db2 => list tables
```

Table/View	Schema	Type	Creation time
-----	-----	-----	-----
ARTICLE	DAVID	T	2000-05-08-15.53.39
AUTHOR	DAVID	T	2000-05-08-15.53.36
BOOK	DAVID	T	2000-05-08-15.53.37
JOURNAL	DAVID	T	2000-05-08-15.53.38
PROCEEDINGS	DAVID	T	2000-05-08-15.53.38
PUBLICATION	DAVID	T	2000-05-08-15.53.36
WROTE	DAVID	T	2000-05-08-15.53.37

```
 7 record(s) selected.
```

Is that all?

```
db2 => list tables for all
```

Table/View	Schema	Type	Creation time
-----	-----	-----	-----
ARTICLE	DAVID	T	2000-05-08-15.53.39
AUTHOR	DAVID	T	2000-05-08-15.53.36
BOOK	DAVID	T	2000-05-08-15.53.37
JOURNAL	DAVID	T	2000-05-08-15.53.38
PROCEEDINGS	DAVID	T	2000-05-08-15.53.38
PUBLICATION	DAVID	T	2000-05-08-15.53.36
WROTE	DAVID	T	2000-05-08-15.53.37
CHECKS	SYSCAT	V	1999-09-10-10.55.30
COLCHECKS	SYSCAT	V	1999-09-10-10.55.30
...			
SYSTABLES	SYSIBM	T	1999-09-10-10.55.12
...			
SYSVIEWS	SYSIBM	T	1999-09-10-10.55.12
COLDIST	SYSSTAT	V	1999-09-10-10.55.39
COLUMNS	SYSSTAT	V	1999-09-10-10.55.39
FUNCTIONS	SYSSTAT	V	1999-09-10-10.55.39
INDEXES	SYSSTAT	V	1999-09-10-10.55.40
TABLES	SYSSTAT	V	1999-09-10-10.55.40

146 record(s) selected.

HELP!

db2 => ?

ACTIVATE DATABASE	ECHO	PRUNE HISTORY/LOGFILE
ADD NODE	EXPORT	QUERY CLIENT
ATTACH	FORCE APPLICATION	QUIESCE TABLESPACES
ATTACH TO	GET/RESET/UPDATE ADMIN CFG	QUIT
BACKUP DATABASE	GET AUTHORIZATIONS	REBIND
BIND	GET CONNECTION STATE	RECONCILE
CATALOG APPC NODE	GET INSTANCE	REDISTRIBUTE NODEGROUP
CATALOG APPCLU NODE	GET MONITOR SWITCHES	REGISTER
CATALOG APPN NODE	GET SNAPSHOT	RELEASE
CATALOG DATABASE	GET/RESET/UPDATE CLI CFG	REORG TABLE
CATALOG DCS DATABASE	GET/RESET/UPDATE DB CFG	REORGCHK
CATALOG GLOBAL DATABASE	GET/RESET/UPDATE DBM CFG	RESET MONITOR
CATALOG IPXSPX NODE	HELP	RESTART DATABASE
CATALOG LDAP DATABASE	IMPORT	RESTORE DATABASE
CATALOG LDAP NODE	INITIALIZE TAPE	REWIND TAPE
CATALOG LOCAL NODE	INVOKE	ROLLFORWARD DATABASE
CATALOG NETBIOS NODE	LIST ACTIVE DATABASES	RUNSTATS
CATALOG NPIPE NODE	LIST APPLICATIONS	SET CLIENT
CATALOG ODBC DATA S.	LIST BACKUP/HISTORY	SET CONNECTION
CATALOG TCPIP NODE	LIST COMMAND OPTIONS	SET RUNTIME DEGREE
CHANGE DATABASE COMMENT	LIST DATABASE DIRECTORY	SET TABLESPACE CONTAINERS
CHANGE SQLISL	LIST DCS APPLICATIONS	SET TAPE POSITION
CONNECT	LIST DCS DIRECTORY	TERMINATE
CONNECT RESET	LIST INDOUBT TRANSACTIONS	UNCATALOG DATABASE
CONNECT TO	LIST NODE DIRECTORY	UNCATALOG DCS DATABASE
CREATE DATABASE	LIST NODEGROUPS	UNCATALOG LDAP DATABASE
DB2START/DB2STOP	LIST NODES	UNCATALOG LDAP NODE
DEACTIVATE DATABASE	LIST ODBC DATA SOURCES	UNCATALOG NODE
DEREGISTER	LIST PACKAGES/TABLES	UNCATALOG ODBC DATA S.
DESCRIBE	LIST TABLESPACE CONTAINERS	UPDATE COMMAND OPTIONS
DETACH	LIST TABLESPACES	UPDATE HISTORY
DISCONNECT	LOAD	UPDATE LDAP NODE
DROP DATABASE	LOAD QUERY	UPDATE MONITOR SWITCHES
DROP NODE	PREP/PRECOMPILE	

Note: Some commands are operating system specific and may not be available.

More HELP!

```
db2 => blah blah
```

```
DB21034E The command was processed as an SQL
statement because it was not a valid Command Line
Processor command. During SQL processing it
returned: SQL0104N An unexpected token "blah" was
found following "BEGIN-OF-STATEMENT". Expected
tokens may include: "<values>". SQLSTATE=42601
```

```
db2 => ? DB21034E
```

```
DB21034E The command was processed as an SQL
statement because it was not a valid
Command Line Processor command. During
SQL processing it returned:
```

Explanation: This message is displayed before the SQL error message. The error may be caused by a syntax error in a non-SQL command.

User Response: Correct the error and resubmit the command.

Explanation of all errors:

Message Reference (on-line)

More (More HELP!)

```
db2 => ? SQL0104N
```

```
SQL0104N An unexpected token "<token>" was found
         following "<text>". Expected tokens may
         include: "<token-list>".
```

Explanation: A syntax error in the SQL statement was detected at the specified token following the text "<text>". The "<text>" field indicates the 20 characters of the SQL statement that preceded the token that is not valid.

As an aid to the programmer, a partial list of valid tokens is provided in the SQLERRM field of the SQLCA as "<token-list>". This list assumes the statement is correct to that point.

The statement cannot be processed.

User Response: Examine and correct the statement in the area of the specified token.

```
sqlcode:  -104
```

```
sqlstate:  42601
```

Scripts

To run code from a file `batch.file` use:

```
rees$ db2 -f batch.file
```

```
<DB2 messages here; input is NOT echoed>
```

Samples from the classes `samples<n>.db2`

Results `results<n>.db2`

all on the “lectures” web page