

IBM Software Group

DB2 Express-C 9 overview course

DB2 Environment

DB2 Information Management Software



ON DEMAND BUSINESS™

DB2 Commands & SQL/XML,**Xquery Statements****SQL/XML, Xquery
Statements**

create bufferpool
create tablespace
create table
alter bufferpool
alter tablespace
alter table
select
insert
update
delete
...

DB2 System Commands

db2set
db2start
db2stop
db2list
db2icrt
db2idrop
...

DB2 CLP Commands

db2 [update dbm cfg]
catalog db
list node directory
create database
list applications
list tablespaces
...
<sql statement>
xquery < >

DB2 Tools**Command Line Tools**

Command Editor
Command Line Processor
Command Window

Development Tools

DB2 Developer Workbench
Project Deployment Tool

General Administration Tools

Control Center
Journal
License Center
Replication Center
Task Center

Information

Information Center
Check for DB2 Updates

Monitoring Tools

Event Analyzer
Health Center
Indoubt Transaction Manager
Memory Visualizer
Activity Monitor

Setup Tools

Configuration Assistant
Configure DB2 .Net Data Provider
Default DB2 Selection Wizard
First Steps
Register Visual Studio Add-ins

DB2 Environment**Instance 'myinst'**

Database Manager
Configuration
File (dbm cfg)

Database MYDB1

Database
Configuration
File (db cfg)

Port

DB2: The big picture

DB2: The big picture

DB2 Commands & SQL/XML, Xquery Statements

SQL/XML, Xquery Statements

create bufferpool
create tablespace
create table
alter bufferpool
alter tablespace
alter table
select
insert
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...

DB2 System Commands

db2set
db2start
db2stop
db2ilist
db2icrt
db2idrop
...

DB2 CLP Commands

```
db2 [update dbm cfg  
      catalog db  
      list node directory  
      create database  
      list applications  
      list tablespaces  
      ...  
      <sql statement>  
      xquery <     >]
```

DB2 Tools

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The DB2 Environment

DB2 Server (Linux/Windows)



The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Port



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Instance DB2

Instance myInst

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Instance myInst

Database MYDB1

Port



The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Database MYDB1

SYSCATSPACE

Port

Instance myInst

Database MYDB1

Port

The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Database MYDB1

SYSCATSPACE

TEMPSPACE1

Instance myInst

Database MYDB1

Port

Port



The DB2 Environment

DB2 Server (Linux/Windows)

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Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

Instance myInst

Database MYDB1

Port

Port



The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

IBMDFAULTBP

Port

Instance myInst

Database MYDB1

Port

The DB2 Environment

DB2 Server (Linux/Windows)

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Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

IBMDFAULTBP

LOGS

Port

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Database MYDB1

Port

The DB2 Environment

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Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

mytbls1

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TEMPSPACE1

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mytbls1

IBMDFAULTBP

LOGS

Database SAMPLE

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Database MYDB1

Port



The DB2 Environment

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SYSCATSPACE

TEMPSPACE1

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mytbls1

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Database SAMPLE

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Instance myInst

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Port



The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

mytbls1

table1

IBMDFAULTBP

LOGS

Database SAMPLE

mytbls1

Port

Instance myInst

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Port



The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

mytbls1

table1

view1

IBMDFAULTBP

LOGS

Database SAMPLE

mytbls1

Port

Instance myInst

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The DB2 Environment

DB2 Server (Linux/Windows)

Instance DB2

Database MYDB1

SYSCATSPACE

TEMPSPACE1

USERSPACE1

mytbls1

table1

view1

index1

IBMDFAULTBP

LOGS

Database SAMPLE

mytbls1

Port

Instance myInst

Database MYDB1

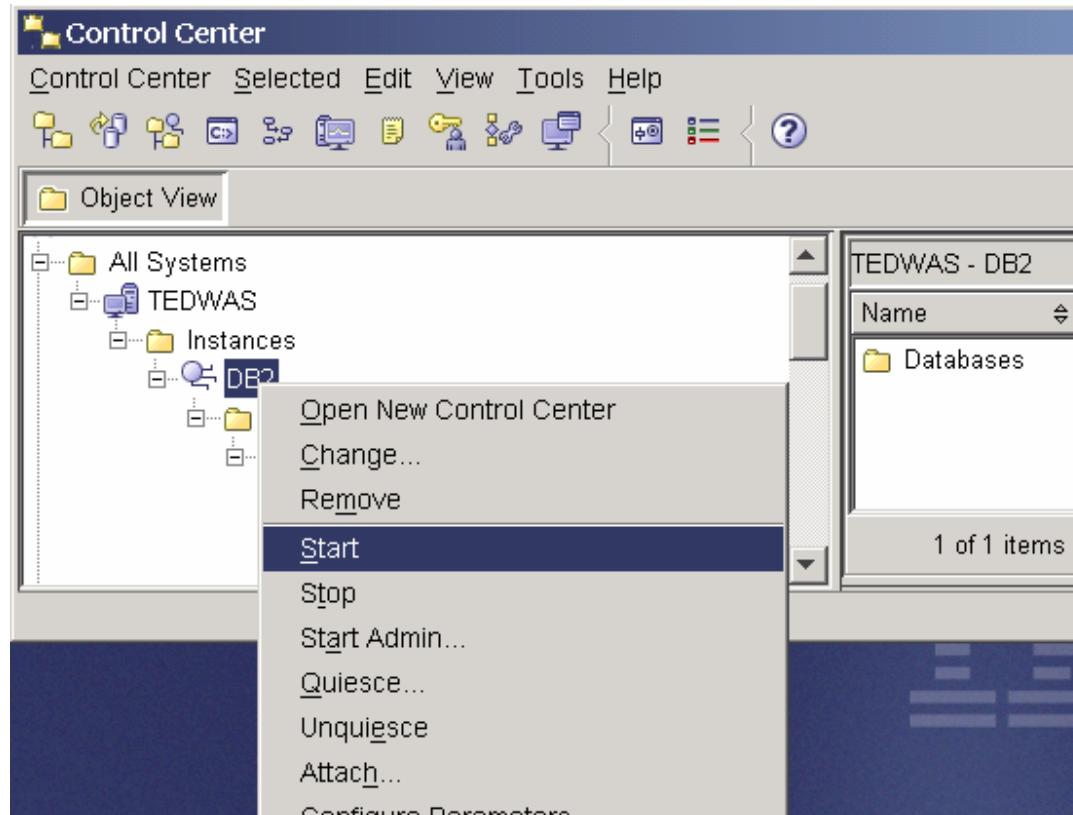
Port

Demo



Stopping/Starting Instance

- It is sometimes necessary to stop and restart an instance
 - ▶ example: after changing a non-dynamic parameter in the DBM CFG

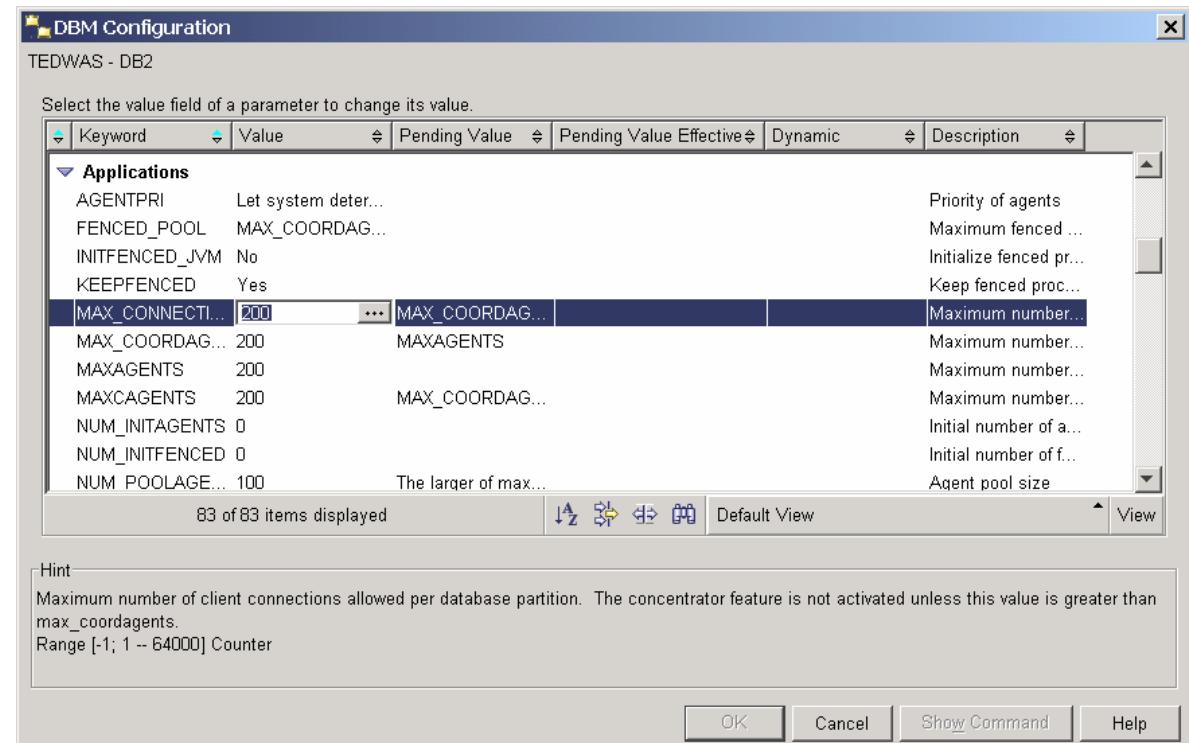
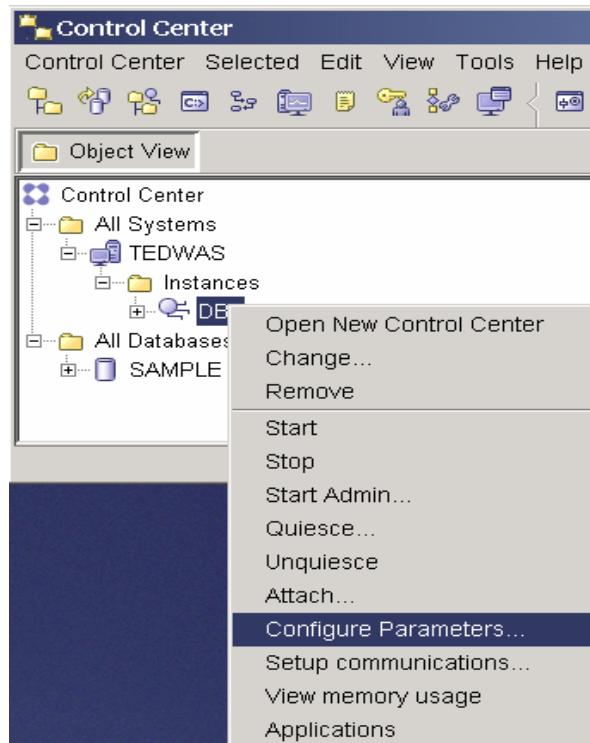


Control Center > (expand) Instances folder > (right-click) Instance > Start/Stop



Database Manager Configuration (DBM CFG) file

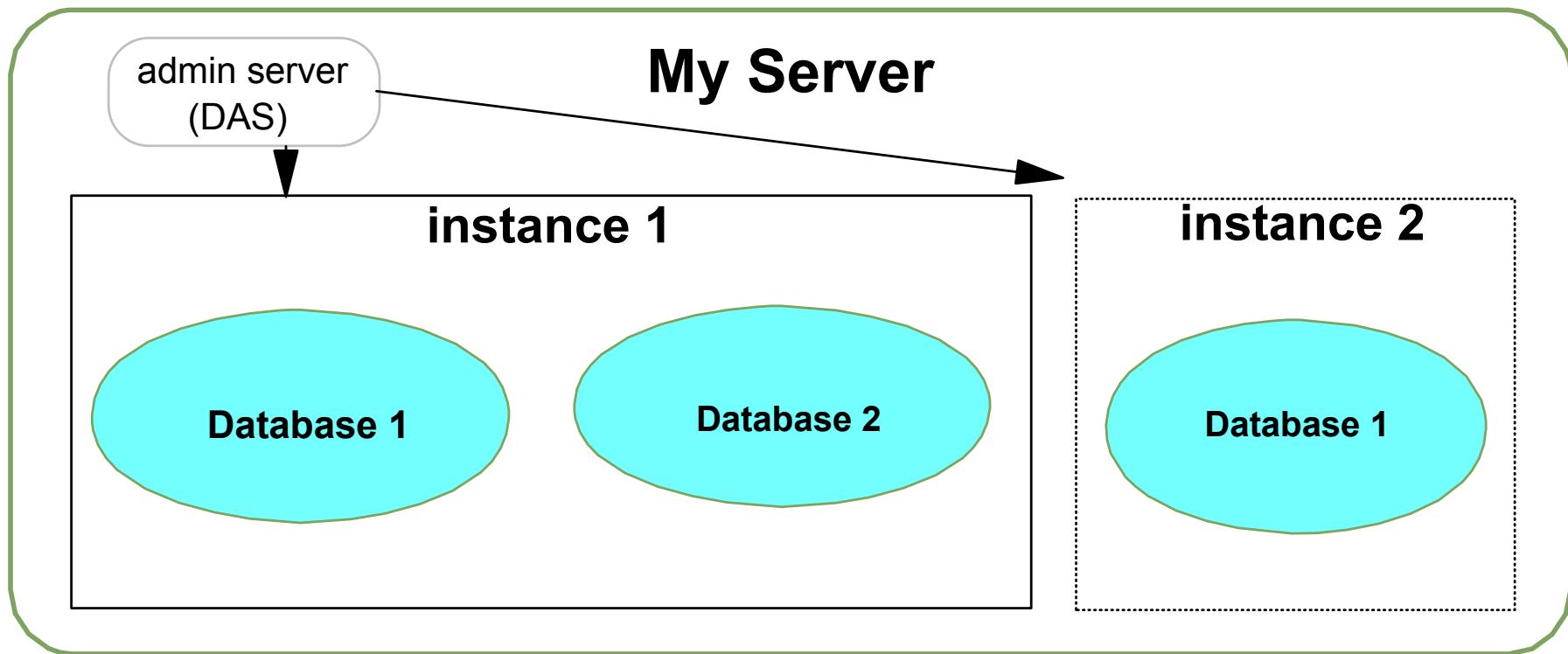
- Many parameters are dynamic (changes take effect immediately); changes to other parameters may require an instance restart



Control Center > (expand) Instances folder > (right-click) Instance > Configure Parameters



DB2 data server big picture

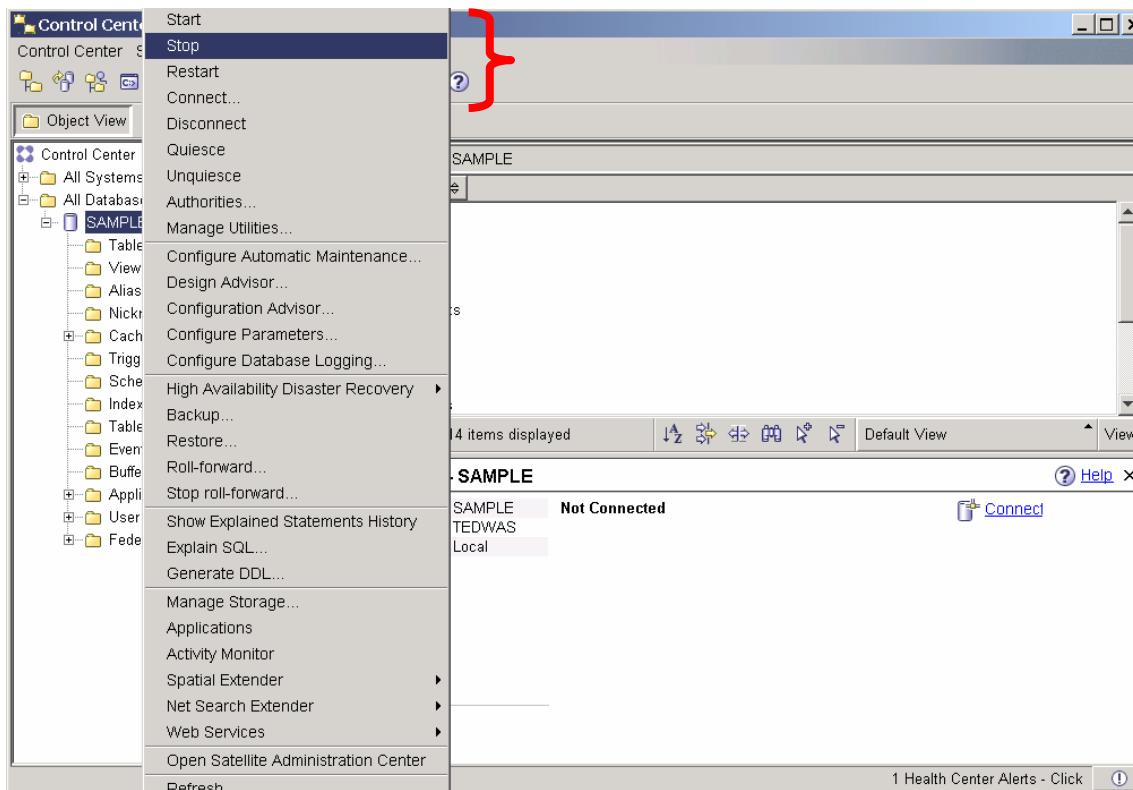


- One physical machine has:
 - One Admin Server
 - One or multiple Instances
- Each Instance (Database Manager):
 - Is a logical server context
 - Can have one or more databases



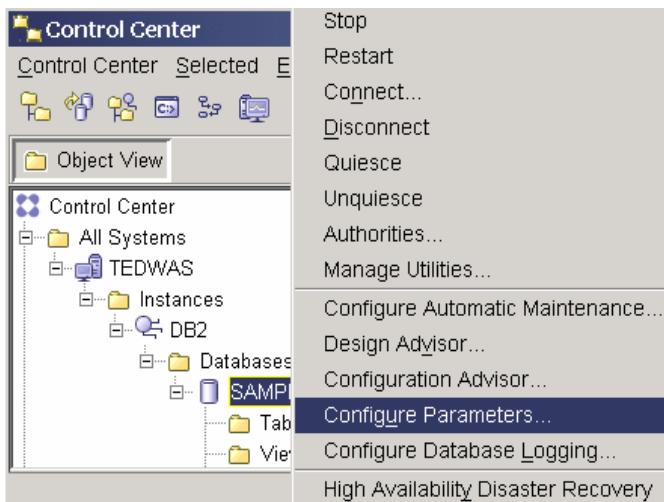
Stopping/Starting Database (Activate/deactivate db)

- It is sometimes necessary to stop and re-start a database
 - ▶ example: after changing a non-dynamic parameter in the DB CFG



Control Center > (expand) All Databases folder > (right-click) Database > Stop/Start

DB CFG



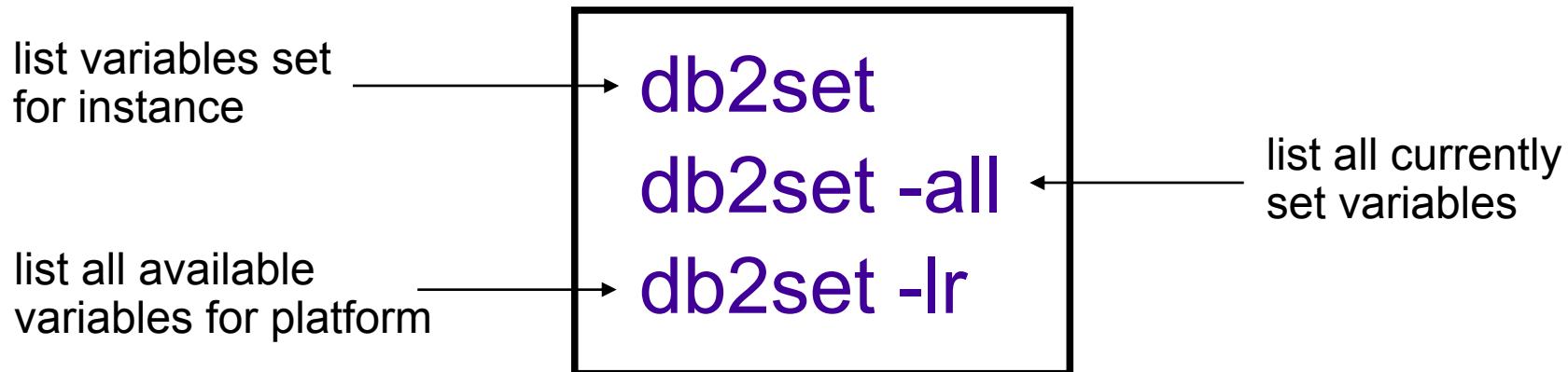
The screenshot shows the 'Database Configuration - SAMPLE' dialog box. It displays a table of configuration parameters with columns for Keyword, Value, Pending Value, Pending Value Effective, Dynamic, and Description. The table is divided into sections: Applications and Environment. In the Applications section, 'DLCHKTIME' is set to 10000. In the Environment section, 'CODEPAGE' is set to IBM-1252. A hint at the bottom explains that 'DLCHKTIME' defines the frequency of deadlock checking. The dialog box includes buttons for OK, Cancel, Apply, Show Command, and Help.

Keyword	Value	Pending Value	Pending Value Effective	Dynamic	Description
AVG_APPLS	1			Yes	Average number o...
DLCHKTIME	10000	...		Yes	Interval for checki...
LOCKTIMEOUT	None				Lock timeout
MAXAPPLS	AUTOMATIC(40)			Yes	Maximum number...
MAXFILEP	64			Yes	Maximum DB file...
MAXLOCKS	22			Yes	Maximum locks p...
Environment					
CODEPAGE					Database Code P...
CODESET	IBM-1252				Database Code Set
COPY_PROTECT	No				Copy protection e...
COUNTRY	1				Database Country...
DATABASE_LEVEL	0xa00				Database release...
DFT_DEGREE	1			Yes	Default degree

Control Center > (expand) All Databases folder > (right-click) Database > Configure Parameters



The DB2 Registry



- **A place to specify environment or platform specific settings**
e.g. settings for RAID, optimizer paths not yet fully integrated, communication protocols, environment specific performance enhancements
- **Settings can be applied to various levels**
 - environment
 - instance
 - global (all instances)

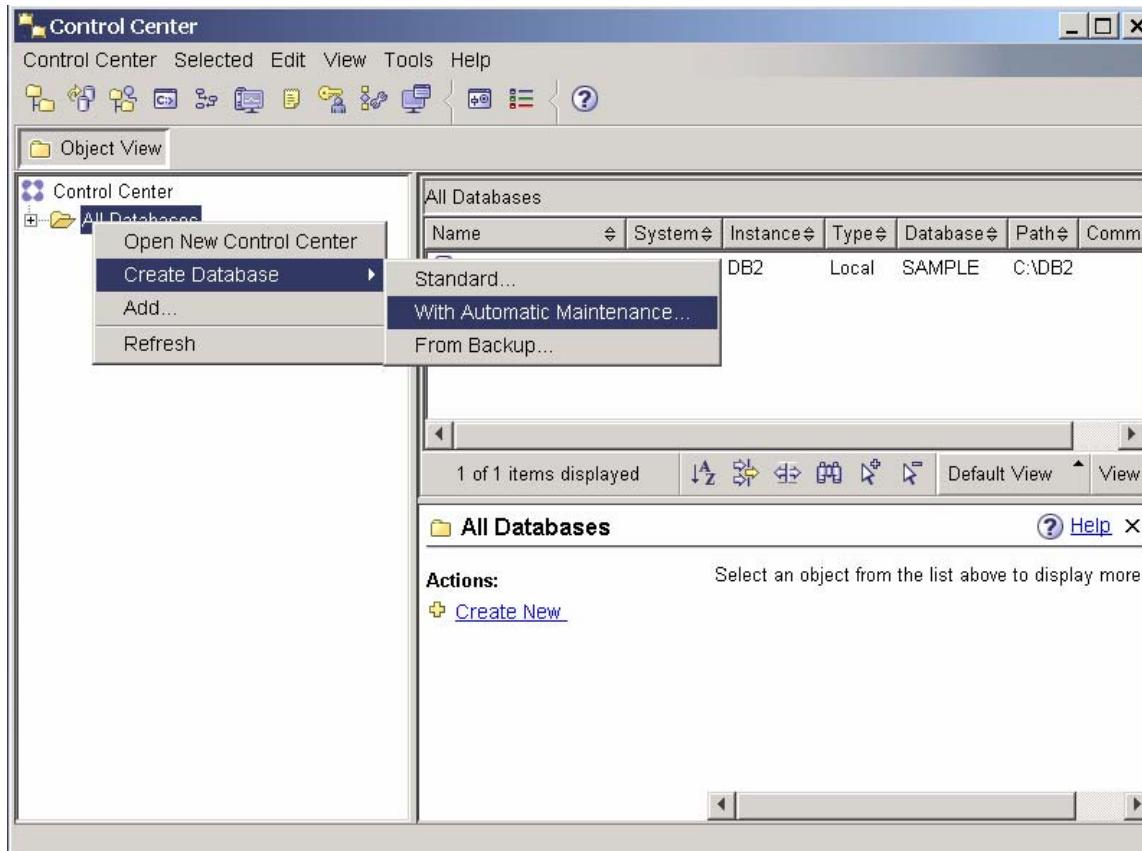


Environment & DB2 Registry variables

- **DB2INSTANCE**
 - ▶ Determines the active instance in your machine
- **DB2_COPY_NAME**
 - ▶ Stores the name of the copy of the DB2 version currently in use.
 - ▶ To switch to a different DB2 copy installed, run the installpath\bin\db2envvars.bat command. This variable cannot be used for this purpose.
- **DB2COMM**
 - ▶ Specifies the communication managers that are started when the database manager is started.
- **DB2_EXTSECURITY**
 - ▶ On Windows, prevents unauthorized access to DB2 by locking DB2 system files



Creating A New Database



Control Center > (right-click) All Databases folder > Create Database > With Automatic Maintenance

