Database Management System LINTER®

Version 5.9

Create and Tune a Database

Relational Expert Systems

RELEX®

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Overview

The gendb utility:

- creates system and work files for each database. It is the first program run to create a new database;
- tunes each DB, i.e., sets or modifies Linters runtime parameters;
- provides a list of Linter's environment variable values and the operating systems environment variables.

This document covers gendb commands in the listed sequence:

CREATE DATABASE	create a new database;
SET	define or redefine Linter's runtime parameters;
VARIABLE	display current Linter-environment variable values;
VERSION	display Linter version which had been using for creating current DB;
HELP	display gendb command syntax information;
EXIT	close the gendb program.

Every command includes the command name and any desired options along with any arguments to the options. The entire command may thus require more than one line. Except for Exit and Help, regardless of the number of lines, a semicolon is required to terminate the command

Running the gendb Utility

Starting gendb

To run the gendb utility against the DB, the DB must be in off-line mode. If you have not set your path to include ~\Linter\bin, you will need to either move to the ~\linter\bin directory and type

```
gendb
```

or type in

```
~\linter\bin\gendb.exe <ENTER>
```

in the MS DOS Prompt window.

After the command has been entered, the interactive mode prompt is displayed

```
gendb>
```

If the interactive mode prompt displays _Gendb>, then it means the command has not finished. You have two ways o finish command:

- Enter the rest of the command and then semicolon;
- Enter a semicolon to terminate the command.

Gendb commands

CREATE DATABASE

The syntax of the command that creates the database is:

```
CREATE DATABASE     [<Database_name>]
[USERNAME <User_name>]
[PASSWORD <Adm_password>]
[MESSAGE OUTPUT <Message_file>]
[NO MESSAGE]
[NO QUERY]
[ON <Env_var>]
[MAXTAB <Table_number>]
[MAXCOL <Column_number>]
[MAXUSER <User_number>];
```

The following table describes the various argument:

Command/Option and Argument	**Description**
CREATE DATABASE "Database_name"	Is an argument directly to the command. It is the name of the database to be created. Quotes are required. The name may not have more than 66 characters.
USERNAME "User_name"	Is the name of the initial administrator of the database. Quotes are required. “SYSTEM” is the name by default. The name is limited to 66 characters.

Command/Option and Argument	**Description**
PASSWORD "Adm_password"	Is the database administrator's password. Quotes are required. "MANAGER" is the name by default. The password is limited to 66 characters.
MESSAGE OUTPUT Message_file	Is the output file for gendb informational messages. If this option is not used, messages will be displayed on the standard output device, usually a terminal.
NO MESSAGE	This option disables message output.
NO QUERY	Disables confirmation questions during database creation. Questions appear only if, during creation of the new database, there is a danger of deleting old database files.
ON Env_var	When the operating system environment variable env_var is set to the database's path, the ON option will create the database in the directory specified by env_var. By default, the database is created in the current directory.
MAXTAB Table_number	The maximum number of tables in the database. The default is 1024.
MAXCOL Column_number	The maximum number of all columns in the database. The default is 10240.
MAXUSR User_number	The maximum number of users authorized to use the database. The default is 1024.

During database creation, gendb creates the system tables and Linter work files. An audit tail of the process will be printed to the file designated by the MESSAGE OUTPUT argument. If that option was not selected, output goes to the display unless the NO MESSAGE option was included in the command.

```
Gendb > create database "test1" on SY02;
 DB location is 'C:\Exchange\doc_eng\BD\'. (ENVIRONMENT VARIABLE SY02)
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\1.41 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\1.31 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\1.51 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\1.61 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\1.01 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\1.11 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\2.01 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\2.11 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\3.01 file is being created ...  done
.
%GENDB-I-CRFILE, The C:\Exchange\doc_eng\BD\3.11 file is being created ...  done
.
%GENDB-I-CRFILE, System tables of LINTER is being created ...  done.
%GENDB-I-SUCCRD,database creation successful
Gendb >
```

Screen 1 – Output of Successful gendb Creation

List of the system tables is set out in the following table.

Table name	Table name in the directory
$$$SYSRL	1.01
$$$ATTRI	1.11
$$$USER	1.21
SYSWBV	1.31
SYSWRK	1.41
SYSSRT	1.51
SYSLOG	1.61

All parameters of the lunching of the Linter kernel are set by default and may be viewed or changed by SET command.

Some configuration sql-les should be executed in order to provide some functions.

Configuration file names are set out in the following table.

Table name	Description
systab.sql	Triggers an Storage procedures
search.sql, default.sql	Full Text index search
distr.sql	Distributed processing
arepl.sql	Asynchronous replication
security.sql	Illegal access security
catalog.sql	Utilization ODBC driver
sequence.sql	Sequence’s creation

SET

```
SET [OUTPUT  <File_name>]
    [DATABASE NAME Database_name>]
    [DATABASE DEVICE <Database Var_L>]
    [DATABASE DIRECTORY <Database_Dir>]
    [DATABASE PATH <Database_Path_G>]
    [SYSWRK DEVICE <Wrk_Var>]
    [SYSWBV DEVICE <Wbv_Var>]
    [SYSSRT DEVICE <Sort_Var>]
    [SYSLOG DEVICE <Log_Var>]
    [SYSWRK SIZE <Wrk_Size>]
```

[SYSWBV SIZE <Wbv_Size>]
[SYSSRT SIZE <Sort_Size>]
[SYSLOG SIZE <Log_Size>]
[SYSWRK LIMIT <Wrk_Limit>]
[SYSWBV LIMIT <Wbv_Limit>]
[SYSSRT LIMIT <Sort_Limit>]
[SYSLOG COUNT <Log_Count>]
[SYSSRT COUNT <Sort_Count>]
[SYSLOG MAX FILES <Max_Count_File>]
[SYSLOG RESERVED FILES <Res_Count_File>]
[TABLES <Table_Que_Size>]
[COLUMN <Column_Que_Size>]
[FILES <File_Que_Size>]
[USERS <User_Que_Size>]
[CHANNELS <Channel_Que_Size>]
[QUANTROW <Num_Row>]
[QUANTIND <Num_Ind>]
[LOGFILE <ALL>|<numfile> sizefile>]
[SIZE <sizefile>]
[EXTSIZ <Page_Count>]
[TRUTYPECOMMIT ON | OFF]
[ROLLBACKOLD ON | OFF]
[LONGROLLBACK ON | OFF]
[SQL MEMORY <Num_Mem>]
[SQL COLUMNS <Num_Col>]
[SQL LIST SIZE <Num_Size>]
[SQL EXPRESSION <Num_Size>]
[SQL TABLES<Num_Tab>]
[CHARSET [DEFAULT|UNICOD|ANSI|DOS|KOI|WIN]];

Argument description and comment is set out in the following table.

Command/Option and Argument	**Description**	**Default**
SET	With no arguments, SET will print Linter's environment variables to the screen.	none
OUTPUT “File_name”	If included, this option prints Linter's environment variable data to the file.	terminal

Command/Option and Argument	Description	Default
DATABASE NAME “Database_name”	The name of the database may be changed with this option.	
DATABASE DIRECTORY “Database_Dir”	Changes the database path for the currently recognized database.	
DATABASE DEVICE “Database_Var_L”	Device/directory on/in which the system database is located, indicating the environment variable for this device. This specification is valid only for the parameters indicated with it in this particular set command, this assignment will be invalid;	
DATABASE PATH “Database_Path_G”	DB_path is the OS environment variable or full path name to the directory of a new database; the directory containing the system files. This option, unlike the DATABASE DEVICE option, changes the database on which all subsequent SET options will operate.	
SYSWRK DEVICE Wrk_Var	The environment variable specifying the device or directory of the Linter SYSWRK file.	SY00
SYSWBV DEVICE Wbv_Var	The environment variable specifying the device or directory of the Linter SYSWBV file.	SY00
SYSSRT DEVICE Sort_Var	The environment variable specifying the device or directory of the Linter SYSSRT files.	SY00
SYSLOG DEVICE Log_Var	The environment variable specifying the device or directory of the Linter system journal files.	SY00
SYSWRK SIZE Wrk_size	Sets the size of the SYSWRK file in 4K pages.	
SYSWBV SIZE Wbv_size	Sets the size of the SYSWBV file in 4K pages.	
SYSSRT SIZE Sort_size	Sets the size of the SYSSRT file in 4K pages.	
SYSLOG SIZE Log_size	Sets the size of the SYSLOG file in 4K pages.	
SYSWRK LIMIT Wrk_Limit	Sets the maximum size of the SYSWRK file in 4K pages.	
SYSWBV LIMIT Wbv_Limit	Sets up the maximum size of the SYSWBV file (in 4K pages).	
SYSSRT LIMIT Sort_Limit	Sets the maximum size of the SYSSRT file in 4K pages.	
SYSSRT COUNT Sort_Count	Sets the number of the SYSSRT files.	
SYSLOG COUNT Log_Count	Sets the number of Linter transaction files.	
SYSLOG MAX FILES Max_Count_File	Set the maximum number of files in SYSLOG	

Command/Option and Argument	Description	Default
SYSLOG RESERVED FILES Res_Count_File	Sets the number of reserved files in SYSLOG	
TABLES Table_Que_Size	Sets the number of database table descriptions in the Linter kernel's cache memory.	100
COLUMN Column_Que_Size	Sets the number of column descriptors in the Linter kernel's cache memory.	500
FILES File_Que_Size	Sets the number of opened table files that may be held in the Linter Kernel's cache memory.	20
USERS User_Que_Size	Sets the number of user privilege descriptions that may be held in the Linter Kernel's cache memory.	100
CHANNELS Cannel_Que_Size	Sets the number of channels (cursors).	100
QUANTROW Num_Row	Sets the number of rows to be scanned without interruption.	10
QUANTIND Num_Ind	Sets the number of indices to be scanned without interruption.	10
LOGFIL {ALL | numfile} SIZE sizefile	Sets the number of a Linter transaction file to be changed to size file. ALL is used when all Linter transaction files are to be changed to SIZE.	
SIZE Size_file	Sets the size of SYSLOG file.	
EXTSIZE Page_Count	Sets the number of file extension pages;	
TRUETYPECOMMIT ON | OFF	ON turns on database update synchronization. OFF turns it off.	
ROLLBACKOLD ON | OFF	ON enables rolling back earlier transactions. OFF disables such rollbacks.	
LONGROLLBACK ON | OFF	ON enables rolling back long transactions. OFF disables such rollbacks.	
SQL MEMORY Num_Mem	reserved	
SQLCOLUMNS Num Col	reserved	
SQLEXPRESSION NumExp	reserved	
SQL_LIST SIZE Num_Size	reserved	
SQL TABLES Num_Tab	reserved	
CHARSET DEFAULT |UNICODE	Specifies default character set for database.	

Command/Option and Argument	Description	Default
|ANSI |DOS |KOI |WIN		

Example

```
Gendb > set
_Gendb >;
                Display Linter kernel startup parameters
database name 'test1              ' device 'SY00' version 5.9.0
Queues sizes : 1) tables     : 100
               2) columns    : 500
               3) files      : 20
               4) channels   : 100
               5) users      : 100
 Maximum row number during data manipulation : 32768
 Row count processed without interruption : 10
 Index count processed without interruption : 1
 Sql parameters usr 0 col 0 prc 0 chs 0 tab 0.
 Commit is True type now (write-through).  Old transaction rollback is on.
 Too long transaction rollback is off.
 Automatic queue configuration is off.
%GENDB-E-UNDVAR,undefined variable : SY02
 File SYSWRK located on <SY02> have size:     0 of 500000 pages by 4096 bytes
%GENDB-E-UNDVAR,undefined variable : SY02
 File SYSWBV located on <SY02> have size:     0 of 500000 pages by 4096 bytes
 Linter sorting pool located on device <SY02>, count   1, limit 500000 pages
 File extension number of pages is 0. Work AREA max : 2048
 SYSLOG files maximum size quota is 0 pages
 Number of SYSLOG reserved files is 0
 Linter transaction log file device <SY02>, count   5, size  200 pages
 Linter transaction log finished normally
 Opened phrase index limit is 10
 In-memory queue limits : tables = 0, columns = 0, files = 0
```

Screen 2 –Output of SET Command

VARIABLE

Entering VAR; or VARIABLE; at the gendb> prompt will display information about the operating systems environment variables.

To direct the output to a file, use:

```
var output filename;
```

where filename is the name of the file to which the output is directed

To get information about selected, one or more in a space-separated l, variables, enter:

```
var env_var1 env_var2 ... ;
```

where env_varn is the name of an environmental variable.

Both options maybe combined:

```
var output filename env_var1 ...;
```

HELP

Entering help at the gendb> prompt will display the gendb commands, options, and argument. Hitting Y and ENTER will display the next help screen.

EXIT

To leave gendb, type in EXIT and hit the ENTER key.

Gendb Messages

Informational Messages

Informational messages report on the current operational status. The message can be understood in the context of the function or activity that produced it.

Error Messages

Users, the computer operating system, and the Linter kernel may all generate error messages.

User Errors

A user error should be analyzed, then the command should be corrected and rerun. Examples of user errors:

```
Syntax error     DB already exists! Rewrite (Y/N)?
Illegal user name      File aaaa doesn't exist
```

System Errors

Usually, the system administrator rather than a user should manage the following system errors:

File creation error	The environment variable was not found.
Error in the batch file	Illegal database name.
Open file error or	Size of the transaction file is too small.
Not enough memory	Recommended minimum is 50 pages.
Internal error	The transaction file was not closed properly. Information can be lost.
Illegal version major	Database version is illegal.
Illegal version minor	Database version is illegal.