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**NAME**

`sql` - execute a command on a database determined by a `dburl`

**SYNOPSIS**

`sql` [*options*] *dburl* [*commands*]

`sql` [*options*] *dburl* < *commandfile*

`#!/usr/bin/sql --shebang` [*options*] *dburl*

**DESCRIPTION**

GNU `sql` aims to give a simple, unified interface for accessing databases through all the different databases' command line clients. So far the focus has been on giving a common way to specify login information (protocol, username, password, hostname, and port number), size (database and table size), and running queries.

The database is addressed using a DBURL. If *commands* are left out you will get that database's interactive shell.

GNU `sql` is often used in combination with GNU `parallel`.

*dburl*

A DBURL has the following syntax: `[sql:]vendor://`  
`[[user][:password]@][host][:port]/[database][?sqlquery]`

See the section DBURL below.

*commands*

The SQL commands to run. Each argument will have a newline appended.

Example: `"SELECT * FROM foo;" "SELECT * FROM bar;"`

If the arguments contain `\n` or `\x0a` this will be replaced with a newline:

Example: `"SELECT * FROM foo;\n SELECT * FROM bar;"`

If no commands are given SQL is read from the keyboard or STDIN.

Example: `echo 'SELECT * FROM foo;' | sql mysql://`

**--db-size****--dbsize**

Size of database. Show the size of the database on disk. For Oracle this requires access to read the table `dba_data_files` - the user `system` has that.

**--help****-h**

Print a summary of the options to GNU `sql` and exit.

**--html**

HTML output. Turn on HTML tabular output.

**--show-processlist****--proclist****--listproc**

Show the list of running queries.

**--show-databases****--showdbs****--list-databases**

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- listdbs**  
List the databases (table spaces) in the database.
- show-tables**
- list-tables**
- table-list**  
List the tables in the database.
- noheaders**
- no-headers**
- n**  
Remove headers and footers and print only tuples. Bug in Oracle: it still prints number of rows found.
- p *pass-through***  
The string following **-p** will be given to the database connection program as arguments. Multiple **-p**'s will be joined with space. Example: `pass '-U'` and the user name to the program:  
`-p "-U scott"` can also be written `-p -U -p scott`.
- r**  
Try 3 times. Short version of `--retries 3`.
- retries *ntimes***  
Try *ntimes* times. If the client program returns with an error, retry the command. Default is `--retries 1`.
- sep *string***
- s *string***  
Field separator. Use *string* as separator between columns.
- skip-first-line**  
Do not use the first line of input (used by GNU **sql** itself when called with `--shebang`).
- table-size**
- tablesize**  
Size of tables. Show the size of the tables in the database.
- verbose**
- v**  
Print which command is sent.
- version**
- V**  
Print the version GNU **sql** and exit.
- shebang**
- Y**  
GNU **sql** can be called as a shebang (`#!`) command as the first line of a script. Like this:  
`#!/usr/bin/sql -Y mysql:///`
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```
SELECT * FROM foo;
```

For this to work **--shebang** or **-Y** must be set as the first option.

## DBURL

A DBURL has the following syntax: [sql:]vendor://  
[[user][:password]@][host][:port]/[database][?sqlquery]

To quote special characters use %-encoding specified in <http://tools.ietf.org/html/rfc3986#section-2.1> (E.g. a password containing '/' would contain '%2F').

Examples: `mysql://scott:tiger@my.example.com/mydb` `sql:oracle://scott:tiger@ora.example.com/xe`  
`postgresql://scott:tiger@pg.example.com/pgdb` `pg://`  
`postgresqssl://scott@pg.example.com:3333/pgdb` `sql:sqlite2:///tmp/db.sqlite?SELECT * FROM foo;`  
`sqlite3:///./db.sqlite?SELECT%20*%20FROM%20foo;`

Currently supported vendors: MySQL (`mysql`), MySQL with SSL (`mysqsls`, `mysqssl`), Oracle (`oracle`, `ora`), PostgreSQL (`postgresql`, `pg`, `pgsql`, `postgres`), PostgreSQL with SSL (`postgresqssl`, `pgs`, `pgsqssl`, `postgresssl`, `pgssl`, `postgresqls`, `pgsqlsls`, `postgres`), SQLite2 (`sqlite`, `sqlite2`), SQLite3 (`sqlite3`).

Aliases must start with ':' and are read from `/etc/sql/aliases` and `~/./sql/aliases`. The user's own `~/./sql/aliases` should only be readable by the user.

Example of aliases:

```
:myalias1 pg://scott:tiger@pg.example.com/pgdb
:myalias2 ora://scott:tiger@ora.example.com/xe
# Short form of mysql://`whoami`:nopassword@localhost:3306/`whoami`
:myalias3 mysql:///
# Short form of mysql://`whoami`:nopassword@localhost:33333/mydb
:myalias4 mysql://:33333/mydb
# Alias for an alias
:m      :myalias4
# the sortest alias possible
:      sqlite2:///tmp/db.sqlite
# Including an SQL query
:query sqlite:///tmp/db.sqlite?SELECT * FROM foo;
```

## EXAMPLES

### Get an interactive prompt

The most basic use of GNU `sql` is to get an interactive prompt:

```
sql sql:oracle://scott:tiger@ora.example.com/xe
```

If you have setup an alias you can do:

```
sql :myora
```

### Run a query

To run a query directly from the command line:

```
sql :myalias "SELECT * FROM foo;"
```

Oracle requires newlines after each statement. This can be done like this:

```
sql :myora "SELECT * FROM foo;" "SELECT * FROM bar;"
```

Or this:

```
sql :myora "SELECT * FROM foo;\nSELECT * FROM bar;"
```

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## Copy a PostgreSQL database

To copy a PostgreSQL database use `pg_dump` to generate the dump and GNU `sql` to import it:

```
pg_dump pg_database | sql pg://scott:tiger@pg.example.com/pgdb
```

## Empty all tables in a MySQL database

Using GNU `parallel` it is easy to empty all tables without dropping them:

```
sql -n mysql:/// 'show tables' | parallel sql mysql:/// DELETE FROM {};
```

## Drop all tables in a PostgreSQL database

To drop all tables in a PostgreSQL database do:

```
sql -n pg:/// '\dt' | parallel --colsep '\|' -r sql pg:/// DROP TABLE {2};
```

## Run as a script

Instead of doing:

```
sql mysql:/// < sqlfile
```

you can combine the sqlfile with the DBURL to make a UNIX-script. Create a script called *demosql*:

```
#!/usr/bin/sql -Y mysql:///
```

```
SELECT * FROM foo;
```

Then do:

```
chmod +x demosql; ./demosql
```

## Use --colsep to process multiple columns

Use GNU `parallel`'s `--colsep` to separate columns:

```
sql -s '\t' :myalias 'SELECT * FROM foo;' | parallel --colsep '\t' do_stuff {4} {1}
```

## Retry if the connection fails

If the access to the database fails occasionally `--retries` can help make sure the query succeeds:

```
sql --retries 5 :myalias 'SELECT * FROM really_big_foo;'
```

## Get info about the running database system

Show how big the database is:

```
sql --db-size :myalias
```

List the tables:

```
sql --list-tables :myalias
```

List the size of the tables:

```
sql --table-size :myalias
```

List the running processes:

```
sql --show-processlist :myalias
```

## REPORTING BUGS

GNU `sql` is part of GNU `parallel`. Report bugs to <bug-parallel@gnu.org>.

## AUTHOR

When using GNU `sql` for a publication please cite:

O. Tange (2011): GNU SQL - A Command Line Tool for Accessing Different Databases Using DBURLs, ;login: The USENIX Magazine, April 2011:29-32.

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## DEPENDENCIES

GNU **sql** uses Perl. If **mysql** is installed, MySQL dburls will work. If **psql** is installed, PostgreSQL dburls will work. If **sqlite** is installed, SQLite2 dburls will work. If **sqlite3** is installed, SQLite3 dburls will work. If **sqlplus** is installed, Oracle dburls will work. If **rlwrap** is installed, GNU **sql** will have a command history for Oracle.

## FILES

~/.sql/aliases - user's own aliases with DBURLs

/etc/sql/aliases - common aliases with DBURLs

## SEE ALSO

**mysql(1)**, **psql(1)**, **rlwrap(1)**, **sqlite(1)**, **sqlite3(1)**, **sqlplus(1)**