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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:///`

**--csv**

CSV output.

**--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.

**--json**

**--pretty**

Pretty JSON output.

**--list-databases**

**--listdbs**

**--show-databases**

**--showdbs**

List the databases (table spaces) in the database.

**--listproc**

**--proclist**

**--show-processlist**

Show the list of running queries.

**--list-tables**

**--show-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.

**--precision** *<rfc3339|h|m/s|ms|u|ns>*

Precision of timestamps.

Specify the format of the output timestamps: rfc3339, h, m, s, ms, u or ns.

**-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:////
```

```
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').

```
csv:///tmp/parallel-bug-56096/mytable csv:///tmp/parallel-bug-56096/mytable  
mysql://me@me/ mysql:////
```

```
sqlite3:///tmp/parallel.db sqlite3:///tmp/parallel.db/table  
sqlite:///tmp/file.sqlite?SELECT csv:///tmp/parallel-CSV/OK  
csv:///tmp/mustfail/fail sqlite3:///tmp/parallel.db
```

Examples:

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

Currently supported vendors:

- \* MySQL (mysql) with SSL (mysqsl, mysqssl)
- \* Oracle (oracle, ora)
- \* PostgreSQL (postgres, pg, pgsq, postgres) with SSL (postgresssl, pgs, pgsqssl, postgresssl, pgssl, postgresqls, pgsqsls, postgres)
- \* SQLite2 (sqlite, sqlite2)
- \* SQLite3 (sqlite3)
- \* InfluxDB 1.x (influx, influxdb) with SSL (influxdbssl, influxdbssl, influxssl, influxssl)

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;"
```

### 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 {};
```

### 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), **influx**(1)