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.

Specifiy 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:///%2Ftmp%2Fparallel-bug-56096/mytable csv:////tmp/parallel-bug-56096/mytable mysql://me@/me/ mysql:////

sqlite3:///%2Frun%2Fshm%2Fparallel.db sqlite3:///%2Frun%2Fshm%2Fparallel.db/table sqlite:///%2Ftmp%2Ffile.sqlite?SELECT csv:///%2Ftmp%2Fparallel-CSV/OK csv:///%2Fmust%2Ffail/fail sqlite3:///%2Frun%2Fshm%2Fparallel.db

Examples:

```
mysql://scott:tiger@my.example.com/mydb
influxdb://scott:tiger@influxdb.example.com/foo
sql:oracle://scott:tiger@ora.example.com/xe
postgresql://scott:tiger@pg.example.com/pgdb
pg:///
postgresqlssl://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 (mysqls, mysqlssl)

* Oracle (oracle, ora)

* PostgreSQL (postgresql, pg, pgsql, postgres) with SSL (postgresqlssl, pgs, pgsqlssl, postgresssl, pgssl, postgresqls, pgsqls, postgress)

* SQLite2 (sqlite, sqlite2)

* SQLite3 (sqlite3)

* InfluxDB 1.x (influx, influxdb) with SSL (influxdbssl, influxdbs, influxs, 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 {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), **influx**(1)