The SQLDF Reference Manual

SQL for Data Frames, version 1.0

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1 Systems

The main system appears first, followed by any subsystem dependency.

1.1 sqldf

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Home Page
http://lisp-stat.dev/docs/reference/sqldf/

Source Control
(:git "git://github.com/lisp-stat/sqldf")

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Description
SQL for Data Frames

Long Description
SQLDF is a library for querying data frames using SQL, optimised for memory consumption. It uses an in-memory data base for transparent queries.

Version 1.0

Dependencies
- sqlite
- data-frame
- select

Source [sqldf.asd], page 3, (file)

Directory s:/src/sqldf/

Components
- [pkgdcl.lisp], page 3, (file)
- [utils.lisp], page 3, (file)
- [sqldf.lisp], page 3, (file)

2 Files

Files are sorted by type and then listed depth-first from the systems components trees.

2.1 Lisp

2.1.1 sqldf.asd

Location sqldf.asd

Systems [sqldf], page 1, (system)

2.1.2 sqldf/pkgdcl.lisp

Parent [sqldf], page 1, (system)

Location pkgdcl.lisp

Packages [sqldf], page 5,

2.1.3 sqldf/utils.lisp

Dependency
[pkgdcl.lisp], page 3, (file)

Parent [sqldf], page 1, (system)

Location utils.lisp

Internal Definitions

- [*downcase-symbols*], page 7, (special variable)
- [*escape-sql-names-p*], page 7, (special variable)
- [*sqlite-reserved-words*], page 7, (special variable)
- [execute-to-column], page 8, (function)
- [from-sql-name], page 8, (function)
- [sqlite-column-type], page 8, (function)
- [statement-column-type], page 8, (function)
- [to-sql-name], page 8, (function)

2.1.4 sqldf/sqldf.lisp

Dependency
[utils.lisp], page 3, (file)

Parent [sqldf], page 1, (system)

Location sqldf.lisp

Exported Definitions

- [read-sqlite], page 7, (function)
- [sqldf], page 7, (function)
- [write-sqlite], page 7, (function)

Internal Definitions

- [create-df-table], page 8, (function)
- [read-table], page 8, (function)
- [write-table], page 9, (function)

3 Packages

Packages are listed by definition order.

3.1 sqldf

SQLDF is a facility for querying data frames with SQL

Source [pkgdcl.lisp], page 3, (file)

Use List common-lisp

Used By List
ls-user

Exported Definitions

- [read-sqlite], page 7, (function)
- [sqldf], page 7, (function)
- [write-sqlite], page 7, (function)

Internal Definitions

- [*downcase-symbols*], page 7, (special variable)
- [*escape-sql-names-p*], page 7, (special variable)
- [*sqlite-reserved-words*], page 7, (special variable)
- [create-df-table], page 8, (function)
- [execute-to-column], page 8, (function)
- [from-sql-name], page 8, (function)
- [read-table], page 8, (function)
- [sqlite-column-type], page 8, (function)
- [statement-column-type], page 8, (function)
- [to-sql-name], page 8, (function)
- [write-table], page 9, (function)

4 Definitions

Definitions are sorted by export status, category, package, and then by lexicographic order.

4.1 Exported definitions

4.1.1 Functions

`read-sqlite` *DB TABLE* [Function]

Read TABLE and return a data frame with the contents. Keys are interned in a package with the same name as TABLE.

Package [`sqldf`], page 5,

Source [`sqldf.lisp`], page 3, (file)

`sqldf` *SQL* [Function]

Execute SQL (a string) on a data frame and return a new data frame with the results. The data frame is identified by the word following FROM (case insensitive) in the SQL string. An in-memory SQLite database is creaetd, the contents of the data frame loaded, the query performed and a new DATA-FRAME returned with the results and the database deleted. In most cases, using this library is faster, from a developers time perspective, than writing the code to perform the same query. SQLDF has been tested with data frames of 350K rows with no slow-down noted. The R documentation for their version of SQLDF suggests that it could be faster than Lisp native queries. Note that the SQL query must use SQL style names for columns and not the Lisp versions, e.g. flight-time becomes flight_time.

Package [`sqldf`], page 5,

Source [`sqldf.lisp`], page 3, (file)

`write-sqlite` *DB TABLE DF* [Function]

Write data-frame DF to TABLE on connection DB. :na symbols are converted to "NA" strings in the database.

Package [`sqldf`], page 5,

Source [`sqldf.lisp`], page 3, (file)

4.2 Internal definitions

4.2.1 Special variables

`*downcase-symbols*` [Special Variable]

Package [`sqldf`], page 5,

Source [`utils.lisp`], page 3, (file)

`*escape-sql-names-p*` [Special Variable]

Package [`sqldf`], page 5,

Source [`utils.lisp`], page 3, (file)

`*sqlite-reserved-words*` [Special Variable]

Package [`sqldf`], page 5,

Source [`utils.lisp`], page 3, (file)

4.2.2 Functions

`create-df-table` *DB TABLE DF* [Function]
Create a database table of NAME in DB according to the schema of DF. This function is to create a table for DF prior to loading. Lisp style symbol names are converted to SQL compatible names.

Package [sqldf], page 5,

Source [sqldf.lisp], page 3, (file)

`execute-to-column` *DB SQL* **&rest** *PARAMETERS* [Function]

Package [sqldf], page 5,

Source [utils.lisp], page 3, (file)

`from-sql-name` *STR* [Function]
Convert a string to a symbol, upcasing and replacing underscores with hyphens.

Package [sqldf], page 5,

Source [utils.lisp], page 3, (file)

`read-table` *DB TABLE* [Function]
Read TABLE and return a data frame with the contents. Keys are interned in a package with the same name as TABLE.

Package [sqldf], page 5,

Source [sqldf.lisp], page 3, (file)

`sqlite-column-type` *SEQUENCE* [Function]
Return a format string for the most general type found in sequence
Use this for sequences of type T to determine how to declare the column to SQLite.

Package [sqldf], page 5,

Source [utils.lisp], page 3, (file)

`statement-column-type` *STMT COLUMN-NUMBER* [Function]
Return the type string of a column of a query statement

Package [sqldf], page 5,

Source [utils.lisp], page 3, (file)

`to-sql-name` () [Function]
Convert a symbol or string into a name that can be a sql table, column, or operation name. Add quotes when escape-p is true, or escape-p is :auto and the name contains reserved words. Quoted or delimited identifiers can be used by passing :literal as the value of escape-p. If escape-p is :literal, and the name is a string then the string is still escaped but the symbol or string is not downcased, regardless of the setting for *downcase-symbols* and the hyphen and forward slash characters are not replaced with underscores. Ignore-reserved-words is only used internally for column names which are allowed to be reserved words, but it is not recommended.

Package [sqldf], page 5,

Source [utils.lisp], page 3, (file)

`write-table` *DB TABLE DF* [Function]

Write data-frame DF to TABLE on connection DB. :na symbols are converted to "NA" strings in the database.

Package [`sqldf`], page 5,

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A.3 Variables

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