general_ledger

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Chapter 1

General Ledger.

General Ledger will be a fully-featured, multi-user, open-source general ledger system. The project is in the early stages of development.

Chapter 2

Todo List

File gluser_pass.cpp

Implement a better form of password encryption. In particular, these functions are not re-entrant, and only use the first 8 characters of the password.

Chapter 3

Bug List

Member gldb::Table::Table (const Table &table)

‘explicit‘ removed from here after failure to compile at end of MySQL query function.

Chapter 4

Module Index

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Chapter 8

Module Documentation

8.1 Program configuration module

Classes

- class genleg::ConfigException

  Configuration module exception base class.
- class genleg::ConfigOptionNotSet

  Exception class for option not set.
- class genleg::ConfigBadOption

  Exception class for bad provided option.
- class genleg::ConfigCouldNotOpenFile

  Exception class for when conf file cannot be opened.
- class genleg::ConfigBadConfigFile

  Exception class for badly formed configuration file.
- class genleg::Config

  Configuration options class.

Enumerations

- enum genleg::Argument

  Enumeration class for option argument specifications.

8.1.1 Detailed Description

Module for getting options from the command line and configuration files.

8.2 Database interaction module

Classes

- class gldb::DBConnException

  Base database connection exception class.
- class gldb::DBConnCouldNotConnect

  Could not connect to database exception class.
- class gldb::DBConnCouldNotQuery

  Could not execute database query exception class.
- class gldb::DBConn

  Database connection class.
- class gldb::DBConnImp

  Abstract database implementation base class.
- class gldb::TableException

  Base database connection exception class.
- class gldb::TableNoSuchField

  No such field exception class.
- class gldb::TableNoSuchRecord

  No such record exception class.
- class gldb::TableMismatchedRecordLength

  Mismatched record length exception class.
- class gldb::TableBadInputFile

  Could not connect to database exception class.
- class gldb::TableCouldNotOpenInputFile

  Could not connect to database exception class.
- class gldb::Table

  Database table class.
- class gldb::TableField

  Database table field class.
- class gldb::TableRow

  Database table row class.
- class gldb::DBConnDummy

  Dummy database implementation class.
- class gldb::DBConnMySQL

  MySQL database implementation class.
- class gldb::MySQLResult

  MySQL result structure class.

Functions

- DBConnImp * gldb::get_connection (const std::string &database, const std::string &hostname, const std::string &username, const std::string &password)

  Creates and returns a pointer to a database implementation.
- std::string gldb::get_database_type ()

  Returns the name of the compiled-in database type.
- static TableRow get_field_names (MySQLResult &result)

  Gets field names from a MySQL result structure.
- static TableRow get_row (MySQLResult &result, MYSQL_ROW row)

  Creates a TableRow from a MySQL result row.

8.2.1 Detailed Description

Module for interacting with the database.

8.2.2 Function Documentation

8.2.2.1 DBConnImp * gldb::get_connection (const std::string & *database,* const std::string & *hostname,* const std::string & *username,* const std::string & *password*)

Creates and returns a pointer to a database implementation.

The implementation of this function is provided by the individual database implementations. One database implementation is compiled into the program at any one time. Multiple database systems are, or will be, supported, and not every system will possess the libraries and headers to compile every implementation. Therefore, only only implementation is compiled in at a time. The fact that each database implementation will implement this function to return the correct derived class prevents any attempt to compile unsupported library code. This would not be feasible if we were to simply provide each implementation as a subclass.

Parameters

database	The name of the database to which to connect.
hostname	The hostname of the computer running the database.
username	The username with which to log into the database.
password	The password with which to log into the database.

Returns

A pointer to the database implementation.

8.2.2.2 std::string gldb::get_database_type ( )

Returns the name of the compiled-in database type.

Returns

The name of the compiled-in database type.

8.2.2.3 static TableRow get_field_names (MySQLResult & *result*) [static]

Gets field names from a MySQL result structure.

Parameters

result	The MySQL result structure.

Returns

A TableRow containing the field names.

8.2.2.4 static TableRow get_row (MySQLResult & *result,* MYSQL_ROW *row*) [static]

Creates a TableRow from a MySQL result row.

Parameters

result	The MySQL result structure.
row	The MySQL row structure.

Returns

A TableRow containing the row data.

8.3 SQL statements module

Classes

- class genleg::DBSQLDummy

  Dummy SQL statements class.
- class genleg::DBSQLMySQL

  MySQL SQL statements class.
- class genleg::DBSQLStatements

  SQL statements class.

8.3.1 Detailed Description

Module for producing SQL statements used by program.

8.4 General Ledger database module.

Classes

- class genleg::GLDatabase

  General ledger database class.
- class genleg::GLDBException

  Base general ledger database exceptionc class.
- class genleg::GLReport

  General ledger report class.
- class genleg::GLUser

  General ledger user class.

Functions

- static std::vector< size_t > max_column_widths (const gldb::Table &table)

  Calculates the maximum required column widths for a table.
- static void grow_widths (std::vector< size_t > &widths, const TableRow &row)

  Increments a vector of required column widths.
- static std::string separator_row (const std::vector< size_t > &widths)

  Returns a decorated separator row for a table.
- static std::string plain_row (const TableRow &row, const std::vector< size_t > &widths)

  Returns a row for a plain report.
- static std::string decorated_row (const TableRow &row, const std::vector< size_t > &widths)

  Returns a row for a decorated report.
- std::string genleg::plain_report_from_table (const gldb::Table &table)

  Creates a plain report from a table.
- std::string genleg::decorated_report_from_table (const gldb::Table &table)

  Creates a decorated report from a table.

8.4.1 Detailed Description

Module for interacting with the general ledger database model.

8.4.2 Function Documentation

8.4.2.1 std::string genleg::decorated_report_from_table (const gldb::Table & *table*)

Creates a decorated report from a table.

A "decorated report" presents the table surrounding with ASCII-art style lines consisting of '+' , '-' and '|' characters.

Parameters

table	The table from which to create the report.

Returns

A string containing the report.

8.4.2.2 static std::string decorated_row (const TableRow & *row,* const std::vector< size_t > & *widths*) [static]

Returns a row for a decorated report.

Parameters

row	The row for which to create the report row.
widths	A vector of required widths.

Returns

A string containing the decorated row.

8.4.2.3 static void grow_widths (std::vector< size_t > & *widths,* const TableRow & *row*) [static]

Increments a vector of required column widths.

Each element of the vector is increased to fit the width of each file in the row, if the existing width is not large enough to contain it.

Parameters

widths	An existing vector of widths.
row	The row against which to check and potentially increase the vector.

8.4.2.4 static std::vector< size_t > max_column_widths (const gldb::Table & *table*) [static]

Calculates the maximum required column widths for a table.

Parameters

table	The table.

Returns

A vector of `size_t` containing the maximum required width for each column, without padding.

8.4.2.5 std::string genleg::plain_report_from_table (const gldb::Table & *table*)

Creates a plain report from a table.

A "plain report" separates each column with a space.

Parameters

table	The table from which to create the report.

Returns

A string containing the report.

8.4.2.6 static std::string plain_row (const TableRow & *row,* const std::vector< size_t > & *widths*) [static]

Returns a row for a plain report.

Parameters

row	The row for which to create the report row.
widths	A vector of required widths.

Returns

A string containing the plain row.

8.4.2.7 static std::string separator_row (const std::vector< size_t > & *widths*) [static]

Returns a decorated separator row for a table.

The "separator row" is of the format "+—+—+—+" where each column is separated by a '+' character, and consists of enough '-' characters to fit the respective width in the vector plus two additional characters for spacing.

Parameters

widths	A vector of required widths.

Returns

A string containing the separator row.

8.5 General purpose utilities.

Functions

- std::string & pgutils::trim_front (std::string &s)

  Trims leading whitespace from a string.
- std::string & pgutils::trim_back (std::string &s)

  Trims trailing whitespace from a string.
- std::string & pgutils::trim (std::string &s)

  Trims leading and trailing whitespace from a string.
- std::vector< std::string > pgutils::split (const std::string &s, const char delim)

  Splits a delimited string into tokens.
- std::vector< std::string > & pgutils::split (std::vector< std::string > &vec, const std::string &s, const char delim)

  Splits a delimited string into tokens.
- bool pgutils::next_content_line (std::istream &ifs, std::string &s)

  Gets the next content line from a stream.
- std::vector< std::string > & pgutils::content_lines (std::vector< std::string > &vec, std::istream &ifs)

  Populates a vector of content lines from a stream.
- std::vector< std::vector < std::string > > & pgutils::split_lines (std::vector< std::vector< std::string >> &vec, std::istream &ifs, const char delim)

  Populates a vector of vectors of fields from a stream.
- std::string & pgutils::join (const std::vector< std::string > &vec, std::string &s, const char delim)

  Joins a vector of strings into a delimited line.
- bool pgutils::replace (std::string &str, const std::string &from, const std::string &to)

  Replaces a substring with another string.

8.5.1 Detailed Description

General purpose utility classes and functions.

8.5.2 Function Documentation

8.5.2.1 std::vector< std::string > & pgutils::content_lines (std::vector< std::string > & *vec,* std::istream & *ifs*)

Populates a vector of content lines from a stream.

Parameters

vec	The vector to populate.
ifs	The input stream.

Returns

A reference to `vec`.

8.5.2.2 std::string & pgutils::join (const std::vector< std::string > & *vec,* std::string & *s,* const char *delim*)

Joins a vector of strings into a delimited line.

The function is the opposite of `split`.

Parameters

vec	The vector containing the strings.
s	The string in which to store the line.
delim	The delimiter character to be used to delimit the fields.

Returns

A reference to `s`.

8.5.2.3 bool pgutils::next_content_line (std::istream & *ifs,* std::string & *s*)

Gets the next content line from a stream.

A "content line" is defined as a line which, after being trimmed of trailing and leading whitespace, is not empty, and does not start with a '#' character (indicating a comment line).

Parameters

ifs	The input stream.
s	The string in which to store the line.

Returns

`true` if there is a next content line, `false` otherwise.

8.5.2.4 bool pgutils::replace (std::string & *str,* const std::string & *from,* const std::string & *to*)

Replaces a substring with another string.

Parameters

str	The string containing the substring to replace.
from	The substring to replace.
to	The string with which to replace the substring.

Returns

`true` if a replacement was made, `false` otherwise.

8.5.2.5 std::vector< std::string > pgutils::split (const std::string & *s,* const char *delim*)

Splits a delimited string into tokens.

Parameters

s	The string to split.
delim	The delimiter character on which to split.

Returns

A vector of tokens.

8.5.2.6 std::vector< std::string > & pgutils::split (std::vector< std::string > & *vec,* const std::string & *s,* const char *delim*)

Splits a delimited string into tokens.

Parameters

vec	The vector into which to add the tokens.
s	The string to split.
delim	The delimiter character on which to split.

Returns

A reference to `vec`.

8.5.2.7 std::vector< std::vector< std::string > > & pgutils::split_lines (std::vector< std::vector< std::string >> & *vec,* std::istream & *ifs,* const char *delim*)

Populates a vector of vectors of fields from a stream.

Parameters

vec	The vector to populate.
ifs	The input stream.
delim	The delimiter character to split each content line.

Returns

A reference to `vec`.

8.5.2.8 std::string & pgutils::trim (std::string & *s*)

Trims leading and trailing whitespace from a string.

Parameters

s	The string to trim.

Returns

The trimmed string.

8.5.2.9 std::string & pgutils::trim_back (std::string & *s*)

Trims trailing whitespace from a string.

Parameters

s	The string to trim.

Returns

The trimmed string.

8.5.2.10 std::string & pgutils::trim_front (std::string & *s*)

Trims leading whitespace from a string.

Parameters

s	The string to trim.

Returns

The trimmed string.

8.6 Database program.

Functions

- static void set_configuration (Config &config, int argc, char ∗argv[])
  Sets program configuration options.
- static bool check_help_and_version (const Config &config)
  Prints help or version messages if requested.
- static bool check_db_parameters (const Config &config)
  Checks if database, hostname and username were provided.
- static void print_usage_message ()
  Prints a program usage message.
- static void print_version_message ()
  Prints a program version message.
- static void print_help_message ()
  Prints a program help message.
- static std::string login (void)
  Gets a password from the terminal.
- int main (int argc, char ∗argv[])
  Main function.

Variables

- static const char ∗ progname = "gl_db"
  Static variable for program name.

8.6.1 Detailed Description

Administrative database management program.

8.6.2 Function Documentation

8.6.2.1 static bool check_db_parameters (const Config & *config*) [static]

Checks if database, hostname and username were provided.

Parameters

config	Reference to a Config object.

Returns

`true` if the information was provided, `false` otherwise.

8.6.2.2 static bool check_help_and_version (const Config & *config*) [static]

Prints help or version messages if requested.

Parameters

config	Reference to a Config object.

Returns

`true` if the help or version message was requested, `false` otherwise.

8.6.2.3 static std::string login (void) [static]

Gets a password from the terminal.

Returns

The password.

8.6.2.4 int main (int *argc*, char * *argv[]*)

Main function.

Parameters

argc	Number of command line arguments.
argv	Command line arguments.

Returns

Exit status code.

8.6.2.5 static void set_configuration (Config & *config*, int *argc*, char * *argv[]*) [static]

Sets program configuration options.

Parameters

config	Reference to a Config object.
argc	`argc` passed to `main()`.
argv	`argv` passed to `main()`.

8.7 Reporting program.

Functions

- static void set_configuration (genleg::Config &config, int argc, char ∗argv[])

  Sets program configuration options.
- static void print_usage_message ()

  Prints a program usage message.
- static void print_version_message ()

  Prints a program version message.
- static void print_help_message ()

  Prints a program help message.
- static std::string login (void)

  Gets a password from the terminal.
- int main (int argc, char ∗argv[])

  Main function.

Variables

- static const char ∗ progname = "gl_report"

  Static variable for program name.

8.7.1 Detailed Description

Administrative reporting program.

8.7.2 Function Documentation

8.7.2.1 static std::string login (void) [static]

Gets a password from the terminal.

Returns

The password.

8.7.2.2 int main (int *argc*, char ∗ *argv[]*)

Main function.

Parameters

argc	Number of command line arguments.
argv	Command line arguments.

Returns

Exit status code.

8.7.2.3 static void set_configuration (genleg::Config & *config*, int *argc*, char * *argv[]*) [static]

Sets program configuration options.

Parameters

config	Reference to a Config object.
argc	`argc` passed to `main()`.
argv	`argv` passed to `main()`.

8.8 User administration program.

Functions

- static void set_configuration (Config &config, int argc, char ∗argv[])

  Sets program configuration options.
- static bool check_help_and_version (const Config &config)

  Prints help or version messages if requested.
- static bool check_db_parameters (const Config &config)

  Checks if database, hostname and username were provided.
- GLUser get_user (Config &config, GLDatabase &gdb)

  Returns a user from either an ID or a name.
- static void show_user_details (const GLUser &user)

  Outputs details for a user.
- static void enable_user (GLUser &user, Config &config, GLDatabase &gdb)

  Enables or disables a user.
- static void set_user_password (GLUser &user, Config &config, GLDatabase &gdb)

  Sets a user's password.
- static void check_user_password (GLUser &user, Config &config)

  Checks a user's password.
- static void print_usage_message ()

  Prints a program usage message.
- static void print_version_message ()

  Prints a program version message.
- static void print_help_message ()

  Prints a program help message.
- static std::string login (void)

  Gets a password from the terminal.
- int main (int argc, char ∗argv[])

  Main function.

Variables

- static const char ∗ progname = "gl_user"

  Static variable for program name.

8.8.1 Detailed Description

User administration program.

8.8.2 Function Documentation

8.8.2.1 static bool check_db_parameters (const Config & *config*) [static]

Checks if database, hostname and username were provided.

Parameters

config	Reference to a Config object.

Returns

`true` if the information was provided, `false` otherwise.

8.8.2.2 static bool check_help_and_version (const Config & *config*) [static]

Prints help or version messages if requested.

Parameters

config	Reference to a Config object.

Returns

`true` if the help or version message was requested, `false` otherwise.

8.8.2.3 static void check_user_password (GLUser & *user,* Config & *config*) [static]

Checks a user's password.

Parameters

user	Reference to user.
config	Reference to program configuration options.

8.8.2.4 static void enable_user (GLUser & *user,* Config & *config,* GLDatabase & *gdb*) [static]

Enables or disables a user.

Parameters

user	Reference to user.
config	Reference to program configuration.
gdb	Reference to database object.

8.8.2.5 GLUser get_user (Config & *config,* GLDatabase & *gdb*)

Returns a user from either an ID or a name.

Parameters

config	Program configurations object.
gdb	Database object.

Returns

The user.

8.8.2.6 static std::string login (void) [static]

Gets a password from the terminal.

Returns

The password.

8.8.2.7 int main (int *argc*, char * *argv[]*)

Main function.

Parameters

argc	Number of command line arguments.
argv	Command line arguments.

Returns

Exit status code.

8.8.2.8 static void set_configuration (Config & *config*, int *argc*, char * *argv[]*) [static]

Sets program configuration options.

Parameters

config	Reference to a Config object.
argc	`argc` passed to `main()`.
argv	`argv` passed to `main()`.

8.8.2.9 static void set_user_password (GLUser & *user*, Config & *config*, GLDatabase & *gdb*) [static]

Sets a user's password.

Parameters

user	Reference to user.
config	Reference to program configuration.
gdb	Reference to database object.

8.8.2.10 static void show_user_details (const GLUser & *user*) [static]

Outputs details for a user.

Parameters

user	Reference to user.

Chapter 9

Class Documentation

9.1 genleg::Config Class Reference

Configuration options class.

`#include <config.h>`

Public Member Functions

- Config ()
- ~Config ()
- void add_cmdline_option (const std::string option, const enum Argument arg)

  Adds a supported command line option.
- void populate_from_cmdline (const int argc, char *const *argv)

  Populates options from the command line.
- void populate_from_file (const std::string filename)

  Populates options from a configuration file.
- bool is_set (const std::string option) const

  Checks is an option is set.
- const std::string & operator[] (const std::string &option) const

  operator[] overload.

Private Attributes

- std::map< std::string, std::string > m_opts_set
- std::list< std::pair < std::string, enum Argument > > m_opts_supp

9.1.1 Detailed Description

Configuration options class.

9.1.2 Constructor & Destructor Documentation

9.1.2.1 Config::Config ( )

Constructor

9.1.2.2 Config::~Config ( )

Destructor

9.1.3 Member Function Documentation

9.1.3.1 void Config::add_cmdline_option (const std::string *option*, const enum Argument *arg*)

Adds a supported command line option.

Parameters

option	The name of the option.
arg	The argument specification for the option.

9.1.3.2 bool Config::is_set (const std::string *option*) const

Checks is an option is set.

Parameters

option	The name of the option to check.

Returns

`true` if the option has been set, `false` if it has not.

9.1.3.3 const std::string & Config::operator[] (const std::string & *option*) const

operator[] overload.

Retrieves the value of a set option.

Parameters

option	The name of the option.

Returns

The value of the option.

Exceptions

ConfigOptionNotSet	If the named option has not been set.

9.1.3.4 void Config::populate_from_cmdline (const int *argc*, char *const * *argv*)

Populates options from the command line.

Parameters

argc	`argc` supplied to `main()`.
argv	`argv` supplied to `main()`.

Exceptions

ConfigBadOption	If an unsupported option is specified, or if a required argument is missing, or if an unexpected argument is found.

9.1.3.5 void Config::populate_from_file (const std::string *filename*)

Populates options from a configuration file.

Parameters

filename	The name of the configuration file.

Exceptions

ConfigCouldNotOpenFile	If the configuration file cannot be opened.
ConfigBadConfigFile	If the configuration file is badly formed.

9.1.4 Member Data Documentation

9.1.4.1 std::map<std::string, std::string> genleg::Config::m_opts_set [private]

Map of options which have been set

9.1.4.2 std::list<std::pair<std::string, enum Argument> > genleg::Config::m_opts_supp [private]

List of options which are supported

The documentation for this class was generated from the following files:

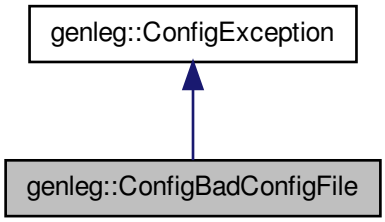
- lib/config/config.h
- lib/config/config.cpp
- lib/config/config_getopt.cpp

9.2 genleg::ConfigBadConfigFile Class Reference

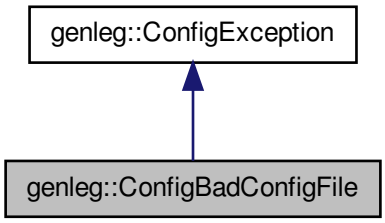
Exception class for badly formed configuration file.

`#include <config.h>`

Inheritance diagram for genleg::ConfigBadConfigFile:



Collaboration diagram for genleg::ConfigBadConfigFile:



Public Member Functions

- ConfigBadConfigFile (const std::string &msg)
  Constructor.

9.2.1 Detailed Description

Exception class for badly formed configuration file.

9.2.2 Constructor & Destructor Documentation

9.2.2.1 genleg::ConfigBadConfigFile::ConfigBadConfigFile (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

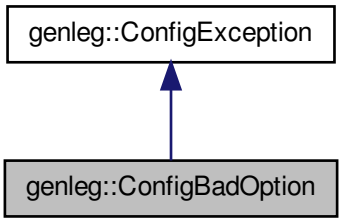
- lib/config/config.h

9.3 genleg::ConfigBadOption Class Reference

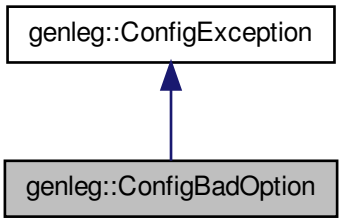
Exception class for bad provided option.

`#include <config.h>`

Inheritance diagram for genleg::ConfigBadOption:



Collaboration diagram for genleg::ConfigBadOption:



Public Member Functions

- ConfigBadOption (const std::string &msg)

  Constructor.

9.3.1 Detailed Description

Exception class for bad provided option.

9.3.2 Constructor & Destructor Documentation

9.3.2.1 genleg::ConfigBadOption::ConfigBadOption (const std::string & *msg*) [inline],[explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

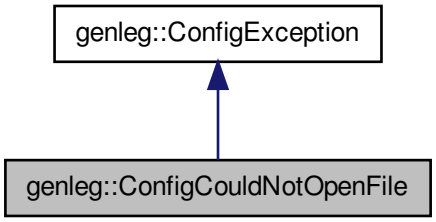
- lib/config/config.h

9.4 genleg::ConfigCouldNotOpenFile Class Reference

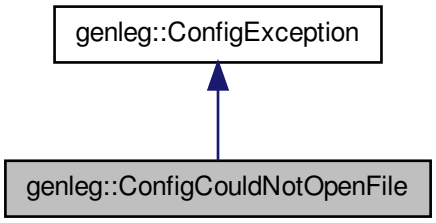
Exception class for when conf file cannot be opened.

`#include <config.h>`

Inheritance diagram for genleg::ConfigCouldNotOpenFile:



Collaboration diagram for genleg::ConfigCouldNotOpenFile:



Public Member Functions

- ConfigCouldNotOpenFile (const std::string &msg)

  Constructor.

9.4.1 Detailed Description

Exception class for when conf file cannot be opened.

9.4.2 Constructor & Destructor Documentation

9.4.2.1 genleg::ConfigCouldNotOpenFile::ConfigCouldNotOpenFile (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

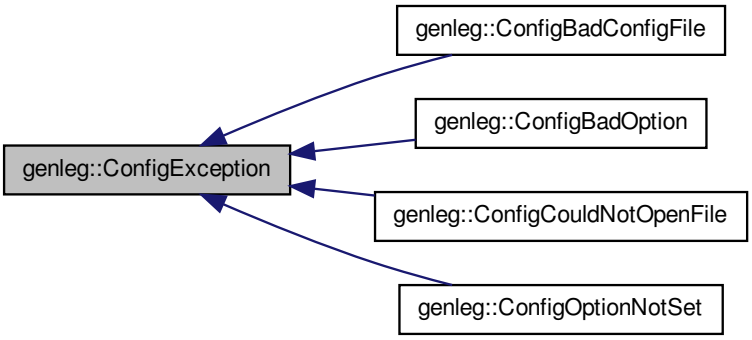
- lib/config/config.h

9.5 genleg::ConfigException Class Reference

Configuration module exception base class.

`#include <config.h>`

Inheritance diagram for genleg::ConfigException:



Public Member Functions

- ConfigException (const std::string &msg)

  Constructor.

9.5.1 Detailed Description

Configuration module exception base class.

9.5.2 Constructor & Destructor Documentation

9.5.2.1 genleg::ConfigException::ConfigException (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

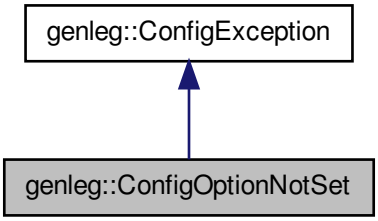
- lib/config/config.h

9.6 genleg::ConfigOptionNotSet Class Reference

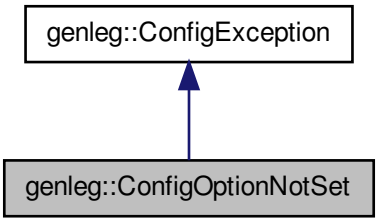
Exception class for option not set.

`#include <config.h>`

Inheritance diagram for genleg::ConfigOptionNotSet:



Collaboration diagram for genleg::ConfigOptionNotSet:



Public Member Functions

- ConfigOptionNotSet (const std::string &msg)

Constructor.

9.6.1 Detailed Description

Exception class for option not set.

9.6.2 Constructor & Destructor Documentation

9.6.2.1 genleg::ConfigOptionNotSet::ConfigOptionNotSet (const std::string & *msg*) [inline],[explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

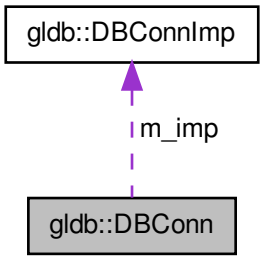
- lib/config/config.h

9.7 gldb::DBConn Class Reference

Database connection class.

`#include <dbconn.h>`

Collaboration diagram for gldb::DBConn:



Public Member Functions

- DBConn (DBConnImp *imp)

  Constructor.
- ~DBConn ()

  Destructor..
- void query (const std::string &sql_query)

  Runs an SQL query.
- Table select (const std::string &query)

Runs an SQL SELECT query.

- DBConn (const DBConn &)
- DBConn (const DBConn &&)
- DBConn & operator= (const DBConn &)
- DBConn & operator= (const DBConn &&)

Private Attributes

- DBConnImp * m_imp

9.7.1 Detailed Description

Database connection class.

9.7.2 Constructor & Destructor Documentation

9.7.2.1 DBConn::DBConn (DBConnImp * *imp*) [explicit]

Constructor.

Parameters

imp	Pointer to database implementation object.

9.7.2.2 gldb::DBConn::DBConn (const DBConn &)

Deleted copy constructor

9.7.2.3 gldb::DBConn::DBConn (const DBConn &&)

Deleted move constructor

9.7.3 Member Function Documentation

9.7.3.1 DBConn& gldb::DBConn::operator= (const DBConn &)

Deleted copy assignment operator

9.7.3.2 DBConn& gldb::DBConn::operator= (const DBConn &&)

Deleted move assignment operator

9.7.3.3 void DBConn::query (const std::string & *sql_query*)

Runs an SQL query.

Parameters

sql_query	The query.

Returns

A Table object containing the results.

9.7.3.4 Table DBConn::select (const std::string & *query*)

Runs an SQL SELECT query.

Parameters

query	The query.

Returns

A Table object containing the results.

9.7.4 Member Data Documentation

9.7.4.1 DBConnImp* gldb::DBConn::m_imp [private]

Pointer to database implementation object.

The documentation for this class was generated from the following files:

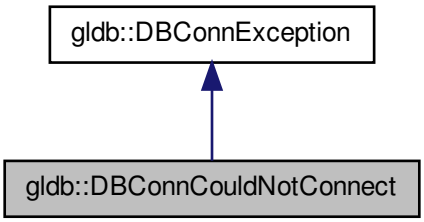
- lib/database/dbconn.h
- lib/database/dbconn.cpp

9.8 gldb::DBConnCouldNotConnect Class Reference

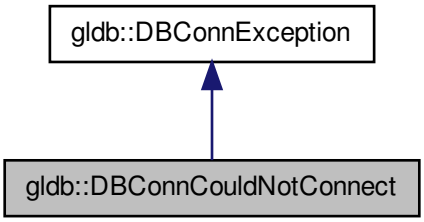
Could not connect to database exception class.

`#include <dbconn.h>`

Inheritance diagram for gldb::DBConnCouldNotConnect:



Collaboration diagram for gldb::DBConnCouldNotConnect:



Public Member Functions

- DBConnCouldNotConnect (const std::string &msg)

  Constructor.

9.8.1 Detailed Description

Could not connect to database exception class.

9.8.2 Constructor & Destructor Documentation

9.8.2.1 gldb::DBConnCouldNotConnect::DBConnCouldNotConnect (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

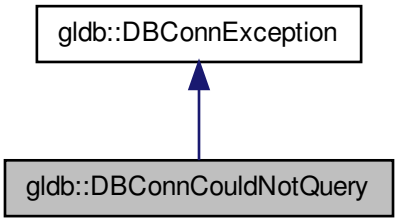
- lib/database/dbconn.h

9.9 gldb::DBConnCouldNotQuery Class Reference

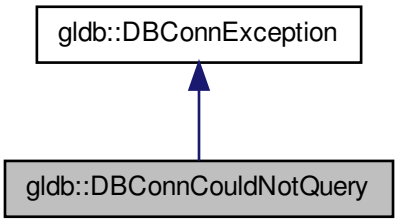
Could not execute database query exception class.

`#include <dbconn.h>`

Inheritance diagram for gldb::DBConnCouldNotQuery:



Collaboration diagram for gldb::DBConnCouldNotQuery:



Public Member Functions

- DBConnCouldNotQuery (const std::string &msg)
  Constructor.

9.9.1 Detailed Description

Could not execute database query exception class.

9.9.2 Constructor & Destructor Documentation

9.9.2.1 gldb::DBConnCouldNotQuery::DBConnCouldNotQuery (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

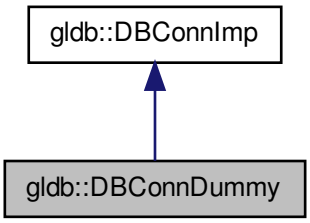
- lib/database/dbconn.h

9.10 gldb::DBConnDummy Class Reference

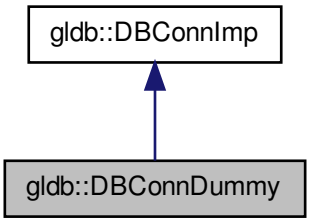
Dummy database implementation class.

`#include <dbconn_dummy_imp.h>`

Inheritance diagram for gldb::DBConnDummy:



Collaboration diagram for gldb::DBConnDummy:



Public Member Functions

- DBConnDummy (const std::string database, const std::string hostname, const std::string username, const std::string password)

  Constructor.
- DBConnDummy (const DBConnDummy &)
- virtual ~DBConnDummy ()
- DBConnDummy & operator= (const DBConnDummy &)
- virtual void query (const std::string &sql_query)

  Runs an SQL query.
- Table select (const std::string &query)

  Fakes running of an SQL SELECT query.

9.10.1 Detailed Description

Dummy database implementation class.

9.10.2 Constructor & Destructor Documentation

9.10.2.1 DBConnDummy::DBConnDummy (const std::string *database,* const std::string *hostname,* const std::string *username,* const std::string *password*)

Constructor.

Parameters

database	The name of the Dummy database.
hostname	The hostname of the server.
username	The username to log into the database.
password	The password to log into the database.

9.10.2.2 gldb::DBConnDummy::DBConnDummy (const DBConnDummy &)

Deleted copy constructor

9.10.2.3 DBConnDummy::~DBConnDummy ( ) [virtual]

Destructor

9.10.3 Member Function Documentation

9.10.3.1 DBConnDummy& gldb::DBConnDummy::operator= (const DBConnDummy &)

Deleted assignment operator

9.10.3.2 void DBConnDummy::query (const std::string & *sql_query*) [virtual]

Runs an SQL query.

Parameters

sql_query	The query.

Exceptions

DBConnCouldNotQuery	If could not successfully execute query.

Implements gldb::DBConnImp.

9.10.3.3 Table DBConnDummy::select (const std::string & *query*) [virtual]

Fakes running of an SQL SELECT query.

Parameters

query	Any query.

Returns

A Table object containing dummy results.

Implements gldb::DBConnImp.

The documentation for this class was generated from the following files:

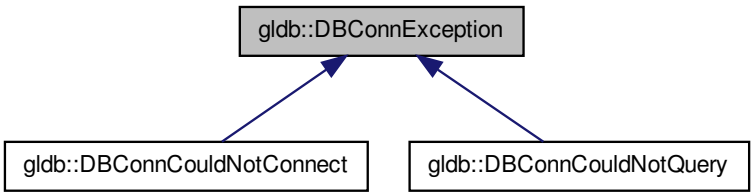
- lib/database_imp/dummy/dbconn_dummy_imp.h
- lib/database_imp/dummy/dbconn_dummy_imp.cpp

9.11 gldb::DBConnException Class Reference

Base database connection exception class.

`#include <dbconn.h>`

Inheritance diagram for gldb::DBConnException:



Public Member Functions

- DBConnException (const std::string &msg)

  Constructor.

9.11.1 Detailed Description

Base database connection exception class.

9.11.2 Constructor & Destructor Documentation

9.11.2.1 gldb::DBConnException::DBConnException (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

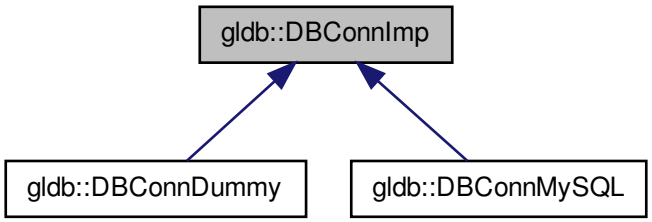
- lib/database/dbconn.h

9.12 gldb::DBConnImp Class Reference

Abstract database implementation base class.

`#include <dbconnimp.h>`

Inheritance diagram for gldb::DBConnImp:



Public Member Functions

- DBConnImp ()
- virtual ~DBConnImp ()
- virtual void query (const std::string &sql_query)=0

  Runs an SQL query.
- virtual Table select (const std::string &query)=0

  Runs an SQL SELECT query.

9.12.1 Detailed Description

Abstract database implementation base class.

9.12.2 Constructor & Destructor Documentation

9.12.2.1 gldb::DBConnImp::DBConnImp ( ) [inline]

Constructor

9.12.2.2 virtual gldb::DBConnImp::~DBConnImp ( ) [inline], [virtual]

Destructor

9.12.3 Member Function Documentation

9.12.3.1 virtual void gldb::DBConnImp::query (const std::string & *sql_query*) [pure virtual]

Runs an SQL query.

Parameters

sql_query	The query.

Implemented in gldb::DBConnMySQL, and gldb::DBConnDummy.

9.12.3.2 virtual Table gldb::DBConnImp::select (const std::string & *query*) [pure virtual]

Runs an SQL SELECT query.

Parameters

query	The query.

Returns

A Table object containing the results.

Implemented in gldb::DBConnMySQL, and gldb::DBConnDummy.

The documentation for this class was generated from the following file:

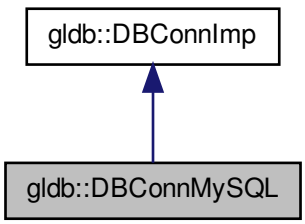
- lib/database/dbconnimp.h

9.13 gldb::DBConnMySQL Class Reference

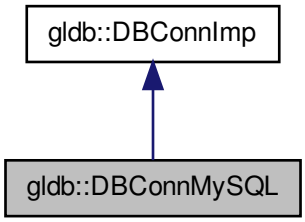
MySQL database implementation class.

`#include <dbconn_mysql_imp.h>`

Inheritance diagram for gldb::DBConnMySQL:



Collaboration diagram for gldb::DBConnMySQL:



Public Member Functions

- DBConnMySQL (const std::string &database, const std::string &hostname, const std::string &username, const std::string &password)

  Constructor.
- DBConnMySQL (const DBConnMySQL &)
- DBConnMySQL (const DBConnMySQL &&)
- virtual ~DBConnMySQL ()
- DBConnMySQL & operator= (const DBConnMySQL &)
- DBConnMySQL & operator= (const DBConnMySQL &&)
- virtual void query (const std::string &sql_query)

  Runs an SQL query.
- virtual Table select (const std::string &sql_query)

  Runs an SQL SELECT query.

Private Attributes

- MYSQL * m_conn

9.13.1 Detailed Description

MySQL database implementation class.

9.13.2 Constructor & Destructor Documentation

9.13.2.1 DBConnMySQL::DBConnMySQL (const std::string & *database*, const std::string & *hostname*, const std::string & *username*, const std::string & *password*)

Constructor.

Parameters

database	The name of the MySQL database.
hostname	The hostname of the server.
username	The username to log into the database.
password	The password to log into the database.

Exceptions

DBConnCouldNotConnect	If could not connect to database.

9.13.2.2 gldb::DBConnMySQL::DBConnMySQL (const DBConnMySQL &)

Deleted copy constructor

9.13.2.3 gldb::DBConnMySQL::DBConnMySQL (const DBConnMySQL &&)

Delete move constructor

9.13.2.4 virtual gldb::DBConnMySQL::~DBConnMySQL ( ) [virtual]

Destructor

9.13.3 Member Function Documentation

9.13.3.1 DBConnMySQL& gldb::DBConnMySQL::operator= (const DBConnMySQL &)

Deleted assignment operator

9.13.3.2 DBConnMySQL& gldb::DBConnMySQL::operator= (const DBConnMySQL &&)

Deleted move assignment operator

9.13.3.3 virtual void gldb::DBConnMySQL::query (const std::string & *sql_query*) [virtual]

Runs an SQL query.

Parameters

sql_query	The SQL query.

Exceptions

DBConnCouldNotQuery	If could not successfully execute query.

Implements gldb::DBConnImp.

9.13.3.4 virtual Table gldb::DBConnMySQL::select (const std::string & *sql_query*) [virtual]

Runs an SQL SELECT query.

Parameters

sql_query	The SQL query.

Returns

A Table object containing the results.

Exceptions

DBConnCouldNotQuery	If could not successfully execute query.

Implements gldb::DBConnImp.

9.13.4 Member Data Documentation

9.13.4.1 MYSQL* gldb::DBConnMySQL::m_conn [private]

The initialized MySQL handle.

The documentation for this class was generated from the following files:

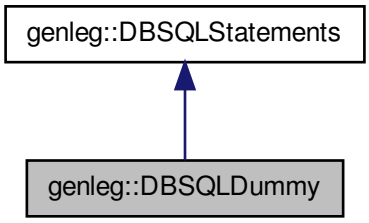
- lib/database_imp/mysql/dbconn_mysql_imp.h
- lib/database_imp/mysql/dbconn_mysql_imp.cpp

9.14 genleg::DBSQLDummy Class Reference

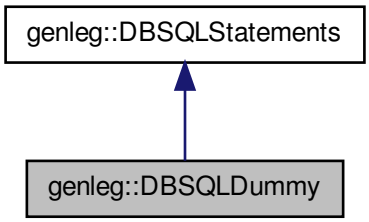
Dummy SQL statements class.

`#include <dbsql_dummy.h>`

Inheritance diagram for genleg::DBSQLDummy:



Collaboration diagram for genleg::DBSQLDummy:



Additional Inherited Members

9.14.1 Detailed Description

Dummy SQL statements class.

The documentation for this class was generated from the following file:

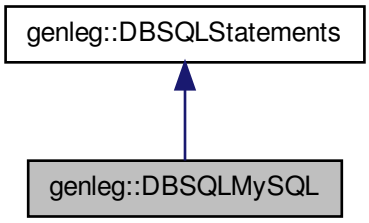
- lib/dbsql/dbsql_dummy.h

9.15 genleg::DBSQLMySQL Class Reference

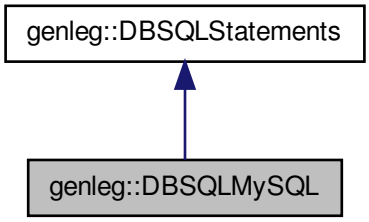
MySQL SQL statements class.

`#include <dbsql_mysql.h>`

Inheritance diagram for genleg::DBSQLMySQL:



Collaboration diagram for genleg::DBSQLMySQL:



Additional Inherited Members

9.15.1 Detailed Description

MySQL SQL statements class.

The documentation for this class was generated from the following file:

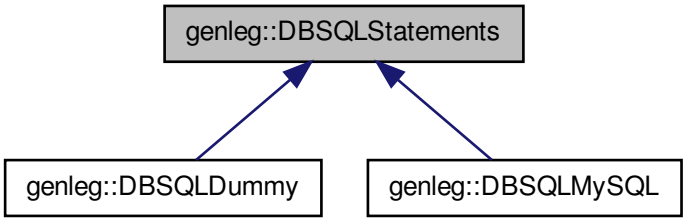
- lib/dbsql/dbsql_mysql.h

9.16 genleg::DBSQLStatements Class Reference

SQL statements class.

`#include <dbsqlstatements.h>`

Inheritance diagram for genleg::DBSQLStatements:



Public Member Functions

- DBSQLStatements ()
- virtual ~DBSQLStatements ()
- virtual std::string create_table (const std::string &table_name) const

  Returns a SQL statement for creating a table.
- virtual std::string drop_table (const std::string &table_name) const

  Returns a SQL statement for dropping a table.
- virtual std::string create_view (const std::string &view_name) const

  Returns a SQL statement for creating a view.
- virtual std::string drop_view (const std::string &view_name) const

  Returns a SQL statement for dropping a view.
- virtual std::string user_by_id (const std::string &user_id) const

  Returns a SQL statement to select a user by ID.
- virtual std::string user_by_username (const std::string &user_name) const

  Returns a SQL statement to select a user by username.
- virtual std::string update_user (const GLUser &user) const

  Returns a SQL UPDATE statement to update a user.
- virtual std::string grant (const std::string &user_id, const std::string &perm) const

  Returns a SQL statement to grant a user a permission.
- virtual std::string revoke (const std::string &user_id, const std::string &perm) const

  Returns a SQL UPDATE statement to revoke a permission from a user.
- virtual std::string get_perms (const std::string &user_id) const

  Returns a SQL UPDATE statement to list a user's permissions.

9.16.1 Detailed Description

SQL statements class.

9.16.2 Constructor & Destructor Documentation

9.16.2.1 DBSQLStatements::DBSQLStatements ( )

Constructor

9.16.2.2 DBSQLStatements::~DBSQLStatements ( ) [virtual]

Destructor

9.16.3 Member Function Documentation

9.16.3.1 std::string DBSQLStatements::create_table (const std::string & *table_name*) const [virtual]

Returns a SQL statement for creating a table.

Parameters

table_name	The table to create.

Returns

The SQL statement to create the table.

9.16.3.2 std::string DBSQLStatements::create_view (const std::string & *view_name*) const [virtual]

Returns a SQL statement for creating a view.

Parameters

view_name	The view to create.

Returns

The SQL statement to create the view.

9.16.3.3 std::string DBSQLStatements::drop_table (const std::string & *table_name*) const [virtual]

Returns a SQL statement for dropping a table.

Parameters

table_name	The table to drop.

Returns

The SQL statement to drop the table.

9.16.3.4 std::string DBSQLStatements::drop_view (const std::string & *view_name*) const [virtual]

Returns a SQL statement for dropping a view.

Parameters

view_name	The view to drop.

Returns

The SQL statement to drop the view.

9.16.3.5 std::string DBSQLStatements::get_perms (const std::string & *user_id*) const [virtual]

Returns a SQL UPDATE statement to list a user's permissions.

Parameters

user_id	The user ID for which to list.

Returns

The SQL statement.

9.16.3.6 std::string DBSQLStatements::grant (const std::string & *user_id,* const std::string & *perm*) const [virtual]

Returns a SQL statement to grant a user a permission.

Attention

This function always sets the user granting the permission to user 1. This will need to be updated to support the recording of which user has granted the permission, when support for others to be able to do so is implemented.

Parameters

user_id	The user ID for which to grant the permission.
perm	A string containing the name of the permission.

Returns

The SQL statement.

9.16.3.7 std::string DBSQLStatements::revoke (const std::string & *user_id,* const std::string & *perm*) const [virtual]

Returns a SQL UPDATE statement to revoke a permission from a user.

Parameters

user_id	The user ID from which to revoke.
perm	The permission to revoke.

Returns

The SQL statement.

9.16.3.8 std::string DBSQLStatements::update_user (const GLUser & *user*) const [virtual]

Returns a SQL UPDATE statement to update a user.

Parameters

user	A user object.

Returns

The SQL statement.

9.16.3.9 std::string DBSQLStatements::user_by_id (const std::string & *user_id*) const [virtual]

Returns a SQL statement to select a user by ID.

Parameters

user_id	The user_id

Returns

The SQL statement.

9.16.3.10 std::string DBSQLStatements::user_by_username (const std::string & *user_name*) const [virtual]

Returns a SQL statement to select a user by username.

Parameters

user_name	The username.

Returns

The SQL statement.

The documentation for this class was generated from the following files:

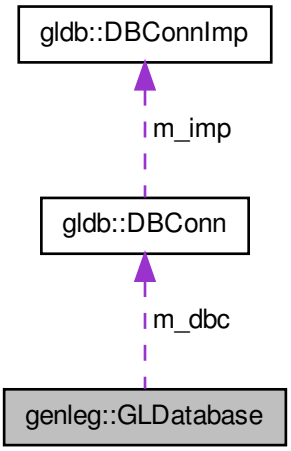
- lib/dbsql/dbsqlstatements.h
- lib/dbsql/dbsqlstatements.cpp

9.17 genleg::GLDatabase Class Reference

General ledger database class.

`#include <gldatabase.h>`

Collaboration diagram for genleg::GLDatabase:



Public Member Functions

- GLDatabase (const std::string &database, const std::string &hostname, const std::string &username, const std::string &password)

  Constructor.
- ~GLDatabase ()
- void create_structure ()

  Creates the database structure.
- void destroy_structure ()

  Destroys the database structure.
- void load_sample_data (const std::string &dir)

  Loads sample data into the database.
- GLUser get_user_by_id (const std::string &user_id)

  Returns a user from an ID.
- GLUser get_user_by_username (const std::string &user_name)

  Returns a user from a user name.
- void update_user (const GLUser &user)

  Updates a user's details.
- void grant (const GLUser &user, const std::string &perm)

  Grants a user a permission.
- void revoke (const GLUser &user, const std::string &perm)

  Revokes a permission from a user.

Static Public Member Functions

- static std::string backend ()

  Returns the backend database implementation.

Private Member Functions

- GLUser create_user (gldb::Table &table)

  Creates a user from a query table.

Private Attributes

- gldb::DBConn m_dbc
- const std::shared_ptr< const DBSQLStatements > m_sql
- const std::vector< std::string > m_tables
- const std::vector< std::string > m_views

9.17.1 Detailed Description

General ledger database class.

9.17.2 Constructor & Destructor Documentation

9.17.2.1 GLDatabase::GLDatabase (const std::string & *database*, const std::string & *hostname*, const std::string & *username*, const std::string & *password*)

Constructor.

Parameters

database	Database name.
hostname	Hostname of database machine.
username	Username to log into database.
password	Password to log into database.

Exceptions

GLDBException	on error.

9.17.2.2 GLDatabase::~GLDatabase ( )

Destructor

9.17.3 Member Function Documentation

9.17.3.1 std::string GLDatabase::backend ( ) [static]

Returns the backend database implementation.

This may be called to discover which database platform support has been compiled into the application.

Returns

A string containing the database platform name.

9.17.3.2 void GLDatabase::create_structure ( )

Creates the database structure.

Exceptions

GLDBException	on error.

9.17.3.3 GLUser GLDatabase::create_user (gldb::Table & *table*) [private]

Creates a user from a query table.

Provided because the public functions can get a user either from an ID or a name, this function contains the common functionality.

Parameters

table	A table from the appropriate query.

Returns

The new user.

9.17.3.4 void GLDatabase::destroy_structure ( )

Destroys the database structure.

Exceptions

GLDBException	on error.

9.17.3.5 GLUser GLDatabase::get_user_by_id (const std::string & *user_id*)

Returns a user from an ID.

Parameters

user_id	The user ID.

Returns

The user.

Exceptions

GLDBException	if the user cannot be found.

9.17.3.6 GLUser GLDatabase::get_user_by_username (const std::string & *user_name*)

Returns a user from a user name.

Parameters

user_name	The user name.

Returns

The user.

Exceptions

GLDBException	if the user cannot be found.

9.17.3.7 void GLDatabase::grant (const GLUser & *user,* const std::string & *perm*)

Grants a user a permission.

Parameters

user	The user for which to grant.
perm	A string containing the permission to grant.

9.17.3.8 void GLDatabase::load_sample_data (const std::string & *dir*)

Loads sample data into the database.

Parameters

dir	The directory containing the sample data. Individual files in that directory should be named after the table they are intended to poplate.

Exceptions

GLDBException	on error.

9.17.3.9 void GLDatabase::revoke (const GLUser & *user,* const std::string & *perm*)

Revokes a permission from a user.

Parameters

user	The user for which to revoke.
perm	A string containing the permission to revoke.

9.17.3.10 void GLDatabase::update_user (const GLUser & *user*)

Updates a user's details.

Parameters

user	The user object.

9.17.4 Member Data Documentation

9.17.4.1 gldb::DBConn genleg::GLDatabase::m_dbc [private]

Database connection

9.17.4.2 const std::shared_ptr<const DBSQLStatements> genleg::GLDatabase::m_sql [private]

SQL statements object

9.17.4.3 const std::vector<std::string> genleg::GLDatabase::m_tables [private]

Vector containing database table names

9.17.4.4 const std::vector<std::string> genleg::GLDatabase::m_views [private]

Vector containing database view names

The documentation for this class was generated from the following files:

- lib/gldb/gldatabase.h
- lib/gldb/gldatabase.cpp

9.18 genleg::GLDBException Class Reference

Base general ledger database exceptionc class.

`#include <glexception.h>`

Public Member Functions

- GLDBException (const std::string &msg)

  Constructor.

9.18.1 Detailed Description

Base general ledger database exceptionc class.

9.18.2 Constructor & Destructor Documentation

9.18.2.1 genleg::GLDBException::GLDBException (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

- lib/gldb/glexception.h

9.19 genleg::GLReport Class Reference

General ledger report class.

`#include <glreport.h>`

Public Member Functions

- GLReport ()
- ~GLReport ()

9.19.1 Detailed Description

General ledger report class.

9.19.2 Constructor & Destructor Documentation

9.19.2.1 genleg::GLReport::GLReport ( ) [inline]

Constructor

9.19.2.2 genleg::GLReport::~GLReport ( ) [inline]

Destructor

The documentation for this class was generated from the following file:

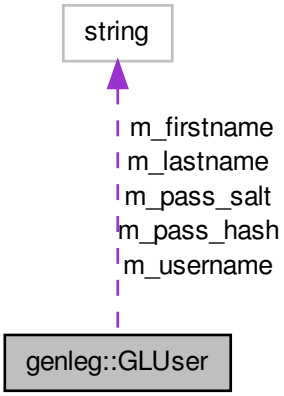
- lib/gldb/glreport.h

9.20 genleg::GLUser Class Reference

General ledger user class.

`#include <gluser.h>`

Collaboration diagram for genleg::GLUser:



Public Member Functions

- GLUser (const std::string &id, const std::string &username, const std::string &firstname, const std::string &lastname, const std::string &pass_hash, const std::string &pass_salt, std::vector< std::string > &&perms, const bool enabled)

  Constructor.
- ~GLUser ()
- const std::string & id () const

  Returns the user ID.
- const std::string & username () const

  Returns the username.
- const std::string & firstname () const

  Returns the user's first name.
- const std::string & lastname () const

  Returns the user's last name.
- const std::string & pass_hash () const

  Returns the user's hashed password.
- const std::string & pass_salt () const

  Returns the user's password salt.
- const std::vector< std::string > & permissions () const

  Returns the permissions for a user.
- bool enabled () const

  Returns the user's enabled status.
- void set_username (const std::string &new_username)

  Sets a user's username.
- void set_firstname (const std::string &new_firstname)

  Sets a user's first name.
- void set_lastname (const std::string &new_lastname)

  Sets a user's last name.
- void set_enabled (const bool new_enabled)

  Sets a user's enabled status.

- void set_password (const std::string &new_pass)

  Sets a user's password hash and salt.
- bool check_password (const std::string &check_pass)

  Checks a password against the user's hash.

Private Attributes

- const std::string m_id
- std::string m_username
- std::string m_firstname
- std::string m_lastname
- std::string m_pass_hash
- std::string m_pass_salt
- const std::vector< std::string > m_perms
- bool m_enabled

9.20.1 Detailed Description

General ledger user class.

9.20.2 Constructor & Destructor Documentation

9.20.2.1 GLUser::GLUser (const std::string & *id*, const std::string & *username*, const std::string & *firstname*, const std::string & *lastname*, const std::string & *pass_hash*, const std::string & *pass_salt*, std::vector< std::string > && *perms*, const bool *enabled*)

Constructor.

Parameters

id	User ID
username	Username
firstname	First name
lastname	Last name
pass_hash	The hashed password
pass_salt	The salt for the hashed password
perms	Vector of user permissions
enabled	`true` if user is enabled, `false` otherwise.

9.20.2.2 GLUser::~GLUser ( )

Destructor

9.20.3 Member Function Documentation

9.20.3.1 bool GLUser::check_password (const std::string & *check_pass*)

Checks a password against the user's hash.

Parameters

check_pass	The password to check, must be > 8 characters.

Returns

`true` is the password matches, `false` otherwise.

9.20.3.2 bool GLUser::enabled ( ) const

Returns the user's enabled status.

Returns

The user's enabled status.

9.20.3.3 const std::string & GLUser::firstname ( ) const

Returns the user's first name.

Returns

The user's first name.

9.20.3.4 const std::string & GLUser::id ( ) const

Returns the user ID.

Returns

The user ID.

9.20.3.5 const std::string & GLUser::lastname ( ) const

Returns the user's last name.

Returns

The user's last name.

9.20.3.6 const std::string & GLUser::pass_hash ( ) const

Returns the user's hashed password.

Returns

The user's hashed password.

9.20.3.7 const std::string & GLUser::pass_salt ( ) const

Returns the user's password salt.

Returns

The user's password salt.

9.20.3.8 const std::vector< std::string > & GLUser::permissions ( ) const

Returns the permissions for a user.

Returns

A vector of strings containing the names of the permissions held by the user.

9.20.3.9 void GLUser::set_enabled (const bool *new_enabled*)

Sets a user's enabled status.

Parameters

new_enabled	The user's new enabled status.

9.20.3.10 void GLUser::set_firstname (const std::string & *new_firstname*)

Sets a user's first name.

Parameters

new_firstname	The user's new first name.

9.20.3.11 void GLUser::set_lastname (const std::string & *new_lastname*)

Sets a user's last name.

Parameters

new_lastname	The user's new last name.

9.20.3.12 void GLUser::set_password (const std::string & *new_pass*)

Sets a user's password hash and salt.

Parameters

new_pass	The new password, must be > 8 characters.

9.20.3.13 void GLUser::set_username (const std::string & *new_username*)

Sets a user's username.

Parameters

new_username	The user's new username.

9.20.3.14 const std::string & GLUser::username ( ) const

Returns the username.

Returns

The username.

9.20.4 Member Data Documentation

9.20.4.1 bool genleg::GLUser::m_enabled [private]

User's enabled status

9.20.4.2 std::string genleg::GLUser::m_firstname [private]

User's first name

9.20.4.3 const std::string genleg::GLUser::m_id [private]

User ID

9.20.4.4 std::string genleg::GLUser::m_lastname [private]

User's last name

9.20.4.5 std::string genleg::GLUser::m_pass_hash [private]

User's hashed password

9.20.4.6 std::string genleg::GLUser::m_pass_salt [private]

User's password salt

9.20.4.7 const std::vector<std::string> genleg::GLUser::m_perms [private]

List of permissions

9.20.4.8 std::string genleg::GLUser::m_username [private]

Username

The documentation for this class was generated from the following files:

- lib/gldb/gluser.h
- lib/gldb/gluser.cpp
- lib/gldb/gluser_pass.cpp

9.21 gldb::MySQLResult Class Reference

MySQL result structure class.

`#include <dbconn_mysql_result.h>`

Public Member Functions

- MySQLResult (MYSQL ∗conn)

  Constructor.
- ∼MySQLResult ()
- MySQLResult (const MySQLResult &result)
- MySQLResult (MySQLResult &&result)
- MySQLResult & operator= (const MySQLResult &result)
- MySQLResult & operator= (MySQLResult &&result)
- MYSQL_RES ∗ result ()

  Returns the MYSQL_RES pointer.
- unsigned int num_fields () const

  Returns the number of fields in the result set.

Private Attributes

- MYSQL_RES ∗ m_result
- unsigned int m_num_fields

9.21.1 Detailed Description

MySQL result structure class.

9.21.2 Constructor & Destructor Documentation

9.21.2.1 MySQLResult::MySQLResult (MYSQL ∗ *conn*) [explicit]

Constructor.

Parameters

conn	MySQL connection

Exceptions

DBConnCouldNotQuery	on failure

9.21.2.2 gldb::MySQLResult::∼MySQLResult ( )

Destructor

9.21.2.3 gldb::MySQLResult::MySQLResult (const MySQLResult & *result*)

Deleted copy constructor

9.21.2.4 gldb::MySQLResult::MySQLResult (MySQLResult && *result*)

Deleted move constructor

9.21.3 Member Function Documentation

9.21.3.1 unsigned int gldb::MySQLResult::num_fields ( ) const [inline]

Returns the number of fields in the result set.

Returns

The number of fields in the result set.

9.21.3.2 MySQLResult& gldb::MySQLResult::operator= (const MySQLResult & *result*)

Deleted copy assignment operator

9.21.3.3 MySQLResult& gldb::MySQLResult::operator= (MySQLResult && *result*)

Deleted move assignment operator

9.21.3.4 MYSQL_RES* gldb::MySQLResult::result ( ) [inline]

Returns the MYSQL_RES pointer.

Returns

The MYSQL_RES pointer.

9.21.4 Member Data Documentation

9.21.4.1 unsigned int gldb::MySQLResult::m_num_fields [private]

The number of fields in the result set

9.21.4.2 MYSQL_RES* gldb::MySQLResult::m_result [private]

The MYSQL_RES pointer

The documentation for this class was generated from the following files:

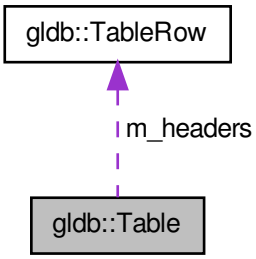
- lib/database_imp/mysql/dbconn_mysql_result.h
- lib/database_imp/mysql/dbconn_mysql_result.cpp

9.22 gldb::Table Class Reference

Database table class.

`#include <table.h>`

Collaboration diagram for gldb::Table:



Public Member Functions

- Table (const TableRow &headers)
  Constructor.
- Table (TableRow &&headers)
  Constructor with move semantics.
- Table (const Table &table)
  Copy constructor.
- Table (Table &&table)
  Move constructor.
- Table & operator= (const Table &table)
  Copy assignment operator.
- Table & operator= (Table &&table)
  Move assignment operator.
- ~Table ()
- size_t num_fields () const
  Returns the number of fields in each row.
- size_t num_records () const
  Returns the number of record in the table.
- iterator begin ()
  Returns iterator for beginning.
- iterator end ()
  Returns iterator for end plus one.
- const_iterator begin () const
  Returns const iterator for beginning.
- const_iterator end () const
  Returns const iterator for end plus one.
- void set_quoted (const std::vector< bool > &vec)
  Sets the quote flags for the records.
- void set_quoted (std::vector< bool > &&vec)
  Sets the quote flags for the records with move semantics.
- const TableRow & get_headers () const
  Returns the field names.
- const TableRow & operator[] (const size_t idx) const

Overloaded index operator.

- void append_record (const TableRow &new_record)

  Appends a record to the table.
- void append_record (TableRow &&new_record)

  Appends a record to the table with move semantics.
- std::string insert_query (const std::string &table_name, const size_t idx)

  Creates an SQL INSERT query from a table record.
- std::string get_field (const std::string &field_name, const size_t row_index)

  Gets a field from a record by field name.

Static Public Member Functions

- static Table create_from_file (const std::string &filename, const char delim)

  Creates a table from an input file.

Private Attributes

- TableRow m_headers
- std::vector< TableRow > m_records
- std::vector< bool > m_quoted

9.22.1 Detailed Description

Database table class.

9.22.2 Constructor & Destructor Documentation

9.22.2.1 Table::Table (const TableRow & *headers*) [explicit]

Constructor.

Parameters

headers	Table row containing field names.

9.22.2.2 Table::Table (TableRow && *headers*) [explicit]

Constructor with move semantics.

Parameters

headers	Table row containing field names.

9.22.2.3 Table::Table (const Table & *table*)

Copy constructor.

Bug 'explicit' removed from here after failure to compile at end of MySQL query function.

Parameters

table	Table to copy.

9.22.2.4 Table::Table (Table && *table*)

Move constructor.

Parameters

table	Table to move.

9.22.2.5 Table::~Table ( )

Destructor

9.22.3 Member Function Documentation

9.22.3.1 void Table::append_record (const TableRow & *new_record*)

Appends a record to the table.

Parameters

new_record	The record to append.

9.22.3.2 void Table::append_record (TableRow && *new_record*)

Appends a record to the table with move semantics.

Parameters

new_record	The record to append.

9.22.3.3 iterator gldb::Table::begin ( ) [inline]

Returns iterator for beginning.

Returns

Iterator for beginning.

9.22.3.4 const_iterator gldb::Table::begin ( ) const [inline]

Returns const iterator for beginning.

Returns

Const iterator for beginning.

9.22.3.5 Table Table::create_from_file (const std::string & *filename*, const char *delim*) [static]

Creates a table from an input file.

Parameters

filename	The name of the input file.
delim	The delimiting character.

Returns

The table.

Exceptions

TableBadInputFile	on badly formed input file.
TableCouldNotOpenInput-File	on bad filename.

9.22.3.6 iterator gldb::Table::end ( ) [inline]

Returns iterator for end plus one.

Returns

Iterator for end plus one.

9.22.3.7 const_iterator gldb::Table::end ( ) const [inline]

Returns const iterator for end plus one.

Returns

Const iterator for end plus one.

9.22.3.8 std::string Table::get_field (const std::string & *field_name*, const size_t *row_index*)

Gets a field from a record by field name.

Parameters

field_name	The name of the field.
row_index	The index of the row.

Returns

The contents ofthe field.

Exceptions

TableNoSuchField	if `field_name` is not a valid field name.
TableNoSuchRecord	if there is no record at index `row_index`.

9.22.3.9 const TableRow& gldb::Table::get_headers ( ) const [inline]

Returns the field names.

Returns

The field names.

9.22.3.10 std::string Table::insert_query (const std::string & *table_name,* const size_t *idx*)

Creates an SQL INSERT query from a table record.

Parameters

table_name	The name of the table into which to INSERT.
idx	The index of the record.

Returns

A string containing the query.

9.22.3.11 size_t gldb::Table::num_fields ( ) const [inline]

Returns the number of fields in each row.

Returns

The number of fields in each row.

9.22.3.12 size_t gldb::Table::num_records ( ) const [inline]

Returns the number of record in the table.

Returns

The number of records in the table.

9.22.3.13 Table & Table::operator= (const Table & *table*)

Copy assignment operator.

Parameters

table	Table to copy.

Returns

Reference to the assigned-to table.

9.22.3.14 Table & Table::operator= (Table && *table*)

Move assignment operator.

Parameters

table	Table to move.

Returns

Reference to the assigned-to table.

9.22.3.15 const TableRow & Table::operator[] (const size_t *idx*) const

Overloaded index operator.

Parameters

idx	The zero-based index of the record.

Returns

The selected record.

9.22.3.16 void Table::set_quoted (const std::vector< bool > & *vec*)

Sets the quote flags for the records.

Parameters

vec	A vector of bools. The size must match the size of the records.

9.22.3.17 void Table::set_quoted (std::vector< bool > && *vec*)

Sets the quote flags for the records with move semantics.

Parameters

vec	A vector of bools. The size must match the size of the records.

9.22.4 Member Data Documentation

9.22.4.1 TableRow gldb::Table::m_headers [private]

The names of the fields

9.22.4.2 std::vector<bool> gldb::Table::m_quoted [private]

A vector to show if fields should be quoted for INSERT

9.22.4.3 std::vector<TableRow> gldb::Table::m_records [private]

A vector of the records

The documentation for this class was generated from the following files:

- lib/database/table.h

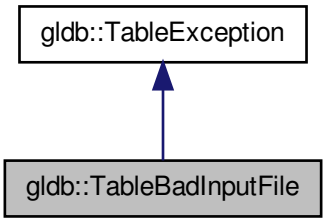
- lib/database/table.cpp

9.23 gldb::TableBadInputFile Class Reference

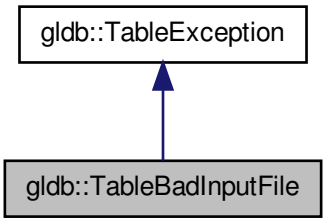
Could not connect to database exception class.

`#include <table.h>`

Inheritance diagram for gldb::TableBadInputFile:



Collaboration diagram for gldb::TableBadInputFile:



Public Member Functions

- TableBadInputFile (const std::string &msg)

  Constructor.

9.23.1 Detailed Description

Could not connect to database exception class.

9.23.2 Constructor & Destructor Documentation

9.23.2.1 gldb::TableBadInputFile::TableBadInputFile (const std::string & *msg*) [inline],[explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

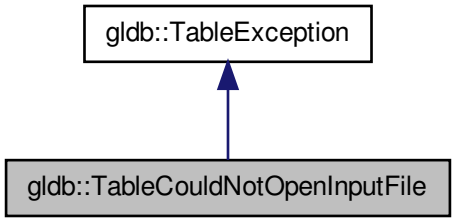
- lib/database/table.h

9.24 gldb::TableCouldNotOpenInputFile Class Reference

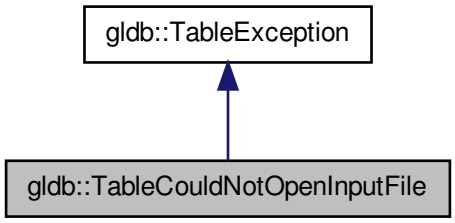
Could not connect to database exception class.

`#include <table.h>`

Inheritance diagram for gldb::TableCouldNotOpenInputFile:



Collaboration diagram for gldb::TableCouldNotOpenInputFile:



Public Member Functions

- TableCouldNotOpenInputFile (const std::string &msg)

  Constructor.

9.24.1 Detailed Description

Could not connect to database exception class.

9.24.2 Constructor & Destructor Documentation

9.24.2.1 gldb::TableCouldNotOpenInputFile::TableCouldNotOpenInputFile (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

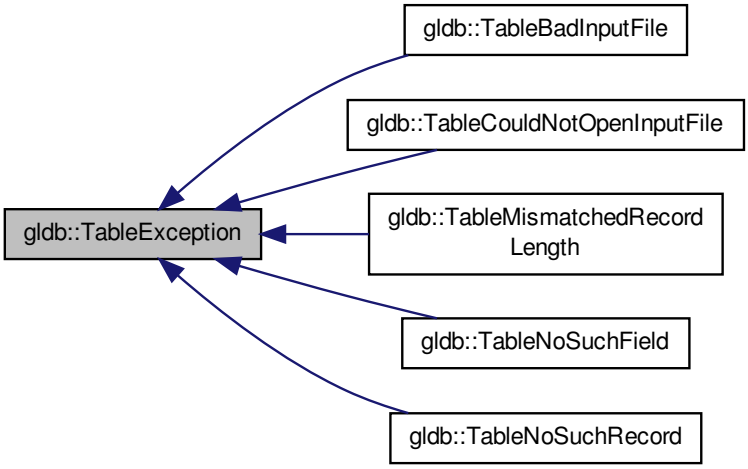
- lib/database/table.h

9.25 gldb::TableException Class Reference

Base database connection exception class.

`#include <table.h>`

Inheritance diagram for gldb::TableException:



Public Member Functions

- TableException (const std::string &msg)

  Constructor.

9.25.1 Detailed Description

Base database connection exception class.

9.25.2 Constructor & Destructor Documentation

9.25.2.1 gldb::TableException::TableException (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

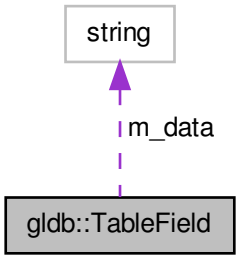
- lib/database/table.h

9.26 gldb::TableField Class Reference

Database table field class.

`#include <tablefield.h>`

Collaboration diagram for gldb::TableField:



Public Member Functions

- TableField (const char *data)

  Constructor accepting `const char *` data.
- TableField (const std::string &data)

  Constructor accepting `std:string` data.
- TableField (std::string &&data)

  Constructor accepting `std:string` data with move semantics.
- TableField (const TableField &field)

  Copy constructor.
- TableField (TableField &&field)

  Move constructor.

- ~TableField ()
- size_t length () const

  Returns the length of the field.
- operator std::string () const

  Overridden conversion operator.
- TableField & operator= (const char *data)

  Overridden assignment operator for `const char *`.
- TableField & operator= (const std::string &data)

  Overridden assignment operator for `std::string`.
- TableField & operator= (std::string &&data)

  Overridden assignment operator for `std::string` with move semantics.
- TableField & operator= (const TableField &field)

  Overridden copy assignment operator.
- TableField & operator= (TableField &&field)

  Overridden move assignment operator.
- char & operator[] (const size_t idx)

  Overridden index operator.
- const char & operator[] (const size_t idx) const

  Overridden index operator.
- TableField & operator+= (const char c)

  Overridden compound assignment operator.
- TableField & operator+= (const std::string &data)

  Overridden compound assignment operator.

Private Attributes

- std::string m_data

Friends

- std::ostream & operator<< (std::ostream &out, const TableField &field)

  Overridden << operator for printing a field.

9.26.1 Detailed Description

Database table field class.

9.26.2 Constructor & Destructor Documentation

9.26.2.1 TableField::TableField (const char * *data*) [explicit]

Constructor accepting `const char *` data.

Parameters

data	The initial contents of the field.

9.26.2.2 TableField::TableField (const std::string & *data*)

Constructor accepting `std:string` data.

Parameters

data	The initial contents of the field.

9.26.2.3 TableField::TableField (std::string && *data*)

Constructor accepting `std:string` data with move semantics.

Parameters

data	The initial contents of the field.

9.26.2.4 TableField::TableField (const TableField & *field*)

Copy constructor.

Parameters

field	The field from which to copy.

9.26.2.5 TableField::TableField (TableField && *field*)

Move constructor.

Parameters

field	The field from which to move.

9.26.2.6 TableField::~TableField ( )

Destructor

9.26.3 Member Function Documentation

9.26.3.1 size_t gldb::TableField::length ( ) const [inline]

Returns the length of the field.

Returns

The length of the field.

9.26.3.2 gldb::TableField::operator std::string ( ) const [inline]

Overridden conversion operator.

Returns the field contents as a string.

9.26.3.3 TableField & TableField::operator+= (const char *c*)

Overridden compound assignment operator.

Parameters

c	The character to append to the field.

Returns

A reference to the same field.

9.26.3.4 TableField & TableField::operator+= (const std::string & *data*)

Overridden compound assignment operator.

Parameters

data	The string to append to the field.

Returns

A reference to the same field.

9.26.3.5 TableField & TableField::operator= (const char * *data*)

Overridden assignment operator for `const char *`.

Parameters

data	The new contents of the field.

Returns

A reference to the same field.

9.26.3.6 TableField & TableField::operator= (const std::string & *data*)

Overridden assignment operator for `std::string`.

Parameters

data	The new contents of the field.

Returns

A reference to the same field.

9.26.3.7 TableField & TableField::operator= (std::string && *data*)

Overridden assignment operator for `std::string` with move semantics.

Parameters

data	The new contents of the field.

Returns

A reference to the same field.

9.26.3.8 TableField & TableField::operator= (const TableField & *field*)

Overridden copy assignment operator.

Parameters

field	The field to copy.

Returns

A reference to the same field.

9.26.3.9 TableField & TableField::operator= (TableField && *field*)

Overridden move assignment operator.

Parameters

field	The field to move.

Returns

A reference to the same field.

9.26.3.10 char& gldb::TableField::operator[] (const size_t *idx*) [inline]

Overridden index operator.

Parameters

idx	The desired index.

Returns

A reference to the character at the specified index.

9.26.3.11 const char& gldb::TableField::operator[] (const size_t *idx*) const [inline]

Overridden index operator.

Parameters

idx	The desired index.

Returns

A const reference to the character at the specified index.

9.26.4 Friends And Related Function Documentation

9.26.4.1 std::ostream& operator<< (std::ostream & *out,* const TableField & *field*) [friend]

Overridden << operator for printing a field.

Parameters

out	The ostream to which to print.
field	A reference to the field.

Returns

A reference to `out`.

9.26.5 Member Data Documentation

9.26.5.1 std::string gldb::TableField::m_data [private]

The field contents

The documentation for this class was generated from the following files:

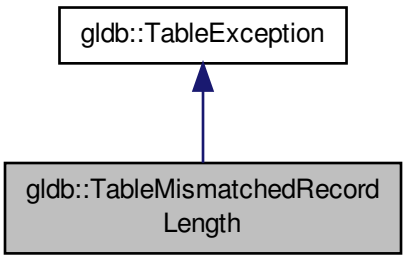
- lib/database/tablefield.h
- lib/database/tablefield.cpp

9.27 gldb::TableMismatchedRecordLength Class Reference

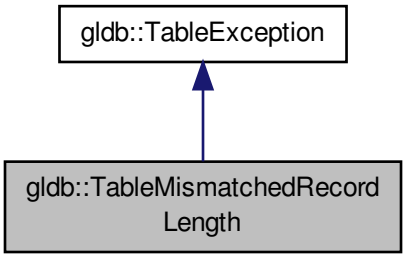
Mismatched record length exception class.

`#include <table.h>`

Inheritance diagram for gldb::TableMismatchedRecordLength:



Collaboration diagram for gldb::TableMismatchedRecordLength:



Public Member Functions

- TableMismatchedRecordLength (const std::string &msg)

  Constructor.

9.27.1 Detailed Description

Mismatched record length exception class.

9.27.2 Constructor & Destructor Documentation

9.27.2.1 gldb::TableMismatchedRecordLength::TableMismatchedRecordLength (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

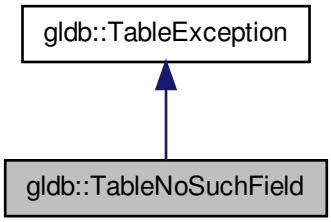
- lib/database/table.h

9.28 gldb::TableNoSuchField Class Reference

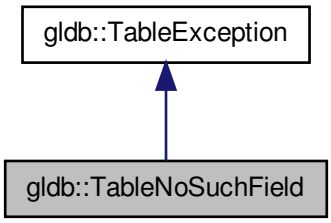
No such field exception class.

`#include <table.h>`

Inheritance diagram for gldb::TableNoSuchField:



Collaboration diagram for gldb::TableNoSuchField:



Public Member Functions

- TableNoSuchField (const std::string &msg)
  Constructor.

9.28.1 Detailed Description

No such field exception class.

9.28.2 Constructor & Destructor Documentation

9.28.2.1 gldb::TableNoSuchField::TableNoSuchField (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

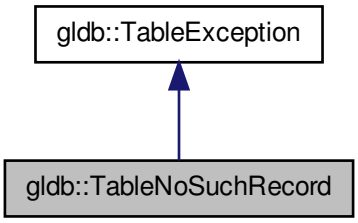
- lib/database/table.h

9.29 gldb::TableNoSuchRecord Class Reference

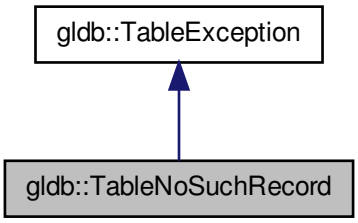
No such record exception class.

`#include <table.h>`

Inheritance diagram for gldb::TableNoSuchRecord:



Collaboration diagram for gldb::TableNoSuchRecord:



Public Member Functions

- TableNoSuchRecord (const std::string &msg)

  Constructor.

9.29.1 Detailed Description

No such record exception class.

9.29.2 Constructor & Destructor Documentation

9.29.2.1 gldb::TableNoSuchRecord::TableNoSuchRecord (const std::string & *msg*) [inline], [explicit]

Constructor.

Parameters

msg	Database error message

The documentation for this class was generated from the following file:

- lib/database/table.h

9.30 gldb::TableRow Class Reference

Database table row class.

`#include <tablerow.h>`

Public Member Functions

- TableRow ()
- TableRow (const size_t size)

  Constructor with initial number of fields.
- TableRow (const std::vector< std::string > &vec)

  Constructor with string vector.
- TableRow (std::vector< std::string > &&vec)

  Constructor with string vector and move semantics.
- TableRow (std::initializer_list< std::string > i)

  Constructor with std::string initializer list.
- TableRow (const TableRow &row)

  Copy constructor.
- TableRow (TableRow &&row)

  Move constructor.
- TableRow & operator= (const TableRow &row)

  Copy assignment operator.
- TableRow & operator= (TableRow &&row)

  Move assignment operator.
- ~TableRow ()
- size_t size () const

  Returns the number of fields.
- iterator begin ()

  Returns iterator for beginning.
- iterator end ()

  Returns iterator for end plus one.
- const_iterator begin () const

  Returns const iterator for beginning.
- const_iterator end () const

  Returns const iterator for end plus one.
- TableField & operator[] (const size_t idx)

  Overridden index operator.
- const TableField & operator[] (const size_t idx) const

  Overridden index operator.

- void append_field (const char *new_field)

  Appends a field to the row.
- void append_field (const std::string &new_field)

  Appends a field to the row.
- void append_field (std::string &&new_field)

  Appends a field to the row with move semantics.
- void append_field (const TableField &new_field)

  Appends a field to the row.
- void append_field (TableField &&new_field)

  Appends a field to the row with move semantics.
- void print (std::ostream &stream) const

  Prints a row.
- std::string record_string (const std::vector< bool > &quoted) const

  Creates a comma separated string of fields.
- std::string record_string () const

  Creates an unquoted comma separated string of fields.

Private Attributes

- std::vector< TableField > m_fields

9.30.1 Detailed Description

Database table row class.

9.30.2 Constructor & Destructor Documentation

9.30.2.1 TableRow::TableRow ( )

Default constructor

9.30.2.2 TableRow::TableRow (const size_t *size*) [explicit]

Constructor with initial number of fields.

Parameters

size	The initial number of fields.

9.30.2.3 TableRow::TableRow (const std::vector< std::string > & *vec*) [explicit]

Constructor with string vector.

Parameters

vec	The vector.

9.30.2.4 TableRow::TableRow (std::vector< std::string > && *vec*) [explicit]

Constructor with string vector and move semantics.

Parameters

vec	The vector.

9.30.2.5 TableRow::TableRow (std::initializer_list< std::string > *i*) [explicit]

Constructor with std::string initializer list.

Parameters

i	The initializer list.

9.30.2.6 TableRow::TableRow (const TableRow & *row*)

Copy constructor.

Parameters

row	The row to copy.

9.30.2.7 TableRow::TableRow (TableRow && *row*)

Move constructor.

Parameters

row	The row to move.

9.30.2.8 TableRow::~TableRow ( )

Destructor

9.30.3 Member Function Documentation

9.30.3.1 void TableRow::append_field (const char * *new_field*)

Appends a field to the row.

Parameters

new_field	The contents of the new field.

9.30.3.2 void TableRow::append_field (const std::string & *new_field*)

Appends a field to the row.

Parameters

new_field	The contents of the new field.

9.30.3.3 void TableRow::append_field (std::string && *new_field*)

Appends a field to the row with move semantics.

Parameters

new_field	The contents of the new field.

9.30.3.4 void TableRow::append_field (const TableField & *new_field*)

Appends a field to the row.

Parameters

new_field	A field from which to copy.

9.30.3.5 void TableRow::append_field (TableField && *new_field*)

Appends a field to the row with move semantics.

Parameters

new_field	A field from which to copy.

9.30.3.6 iterator gldb::TableRow::begin ( ) [inline]

Returns iterator for beginning.

Returns

Iterator for beginning.

9.30.3.7 const_iterator gldb::TableRow::begin ( ) const [inline]

Returns const iterator for beginning.

Returns

Const iterator for beginning.

9.30.3.8 iterator gldb::TableRow::end ( ) [inline]

Returns iterator for end plus one.

Returns

Iterator for end plus one.

9.30.3.9 const_iterator gldb::TableRow::end ( ) const [inline]

Returns const iterator for end plus one.

Returns

Const iterator for end plus one.

9.30.3.10 TableRow & TableRow::operator= (const TableRow & *row*)

Copy assignment operator.

Parameters

row	The row to copy.

Returns

A reference to the assigned-to row.

9.30.3.11 TableRow & TableRow::operator= (TableRow && *row*)

Move assignment operator.

Parameters

row	The row to move.

Returns

A reference to the assigned-to row.

9.30.3.12 TableField& gldb::TableRow::operator[] (const size_t *idx*) [inline]

Overridden index operator.

Parameters

idx	The zero-based index of the field.

Returns

A reference to the field at the specified index.

9.30.3.13 const TableField& gldb::TableRow::operator[] (const size_t *idx*) const [inline]

Overridden index operator.

Parameters

idx	The zero-based index of the field.

Returns

A const reference to the field at the specified index.

9.30.3.14 void TableRow::print (std::ostream & *stream*) const

Prints a row.

Parameters

stream	The ostream to which to print.

9.30.3.15 std::string TableRow::record_string (const std::vector< bool > & *quoted*) const

Creates a comma separated string of fields.

Parameters

quoted	A vector of `bool`, for each field `true` means that field will be enclosed in single quotes in the comma separated string, `false` means it will not be.

Returns

The comma separated string.

9.30.3.16 std::string TableRow::record_string ( ) const

Creates an unquoted comma separated string of fields.

Returns

The unquoted comma separated string.

9.30.3.17 size_t gldb::TableRow::size ( ) const [inline]

Returns the number of fields.

Returns

The number of fields.

9.30.4 Member Data Documentation

9.30.4.1 std::vector<TableField> gldb::TableRow::m_fields [private]

A vector of fields

The documentation for this class was generated from the following files:

- lib/database/tablerow.h
- lib/database/tablerow.cpp

Chapter 10

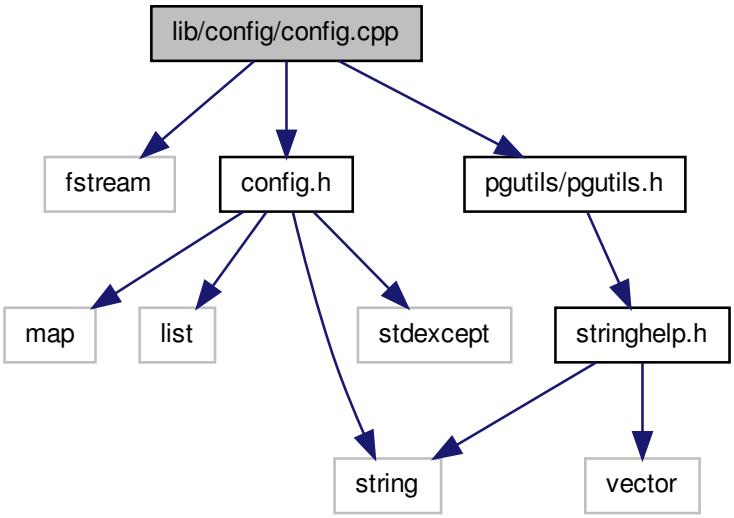
File Documentation

10.1 lib/config/config.cpp File Reference

Implementation of program configurations class.

```
#include <fstream>
#include "config.h"
#include "pgutils/pgutils.h"
```

Include dependency graph for config.cpp:



10.1.1 Detailed Description

Implementation of program configurations class.

Author

Paul Griffiths

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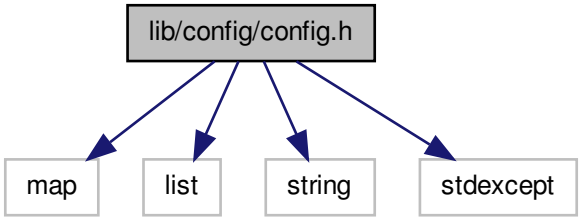
10.2 lib/config/config.h File Reference

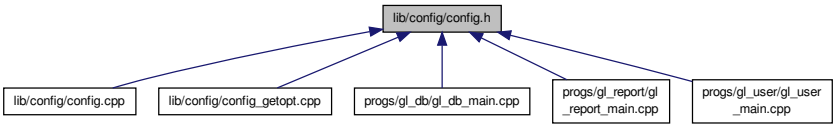
Interface to program configurations class.

```
#include <map>
#include <list>
#include <string>
#include <stdexcept>
```

Include dependency graph for config.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::ConfigException

  Configuration module exception base class.
- class genleg::ConfigOptionNotSet

  Exception class for option not set.
- class genleg::ConfigBadOption

  Exception class for bad provided option.
- class genleg::ConfigCouldNotOpenFile

  Exception class for when conf file cannot be opened.
- class genleg::ConfigBadConfigFile

  Exception class for badly formed configuration file.
- class genleg::Config

  Configuration options class.

Enumerations

- enum genleg::Argument

  Enumeration class for option argument specifications.

10.2.1 Detailed Description

Interface to program configurations class.

Author

Paul Griffiths

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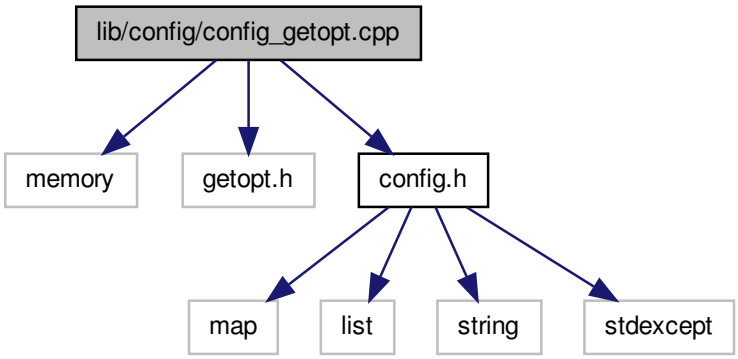
10.3 lib/config/config_getopt.cpp File Reference

Implementation of command line functionality.

```
#include <memory>
#include <getopt.h>
#include "config.h"
```

Include dependency graph for config_getopt.cpp:



Macros

- #define _XOPEN_SOURCE 600

10.3.1 Detailed Description

Implementation of command line functionality. Included in separate file to isolate usage of non-standard getopt library.

Author

Paul Griffiths

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10.3.2 Macro Definition Documentation

10.3.2.1 #define _XOPEN_SOURCE 600

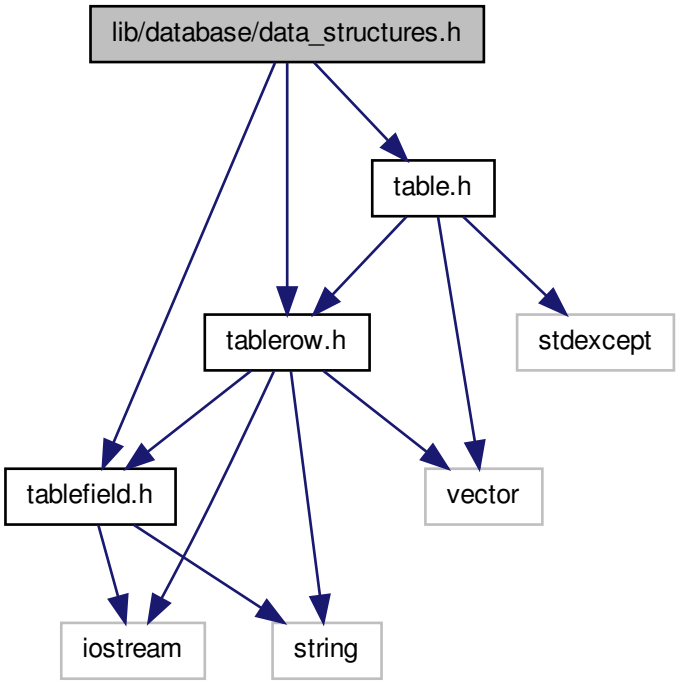
UNIX feature test macro for getopt library

10.4 lib/database/data_structures.h File Reference

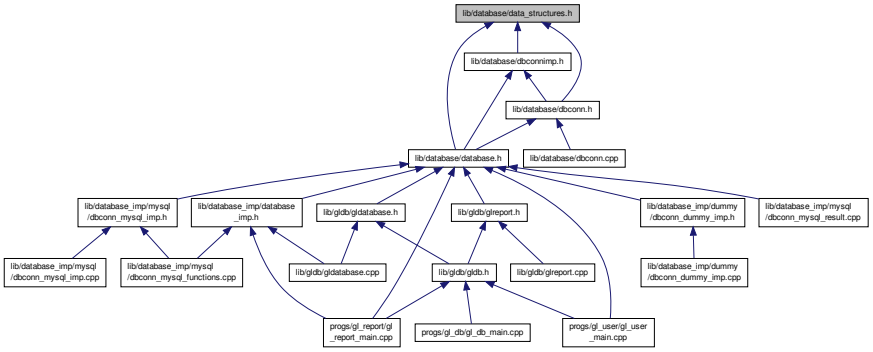
Main interface to database data structures.

```
#include "tablefield.h"
#include "tablerow.h"
#include "table.h"
```

Include dependency graph for data_structures.h:



This graph shows which files directly or indirectly include this file:



10.4.1 Detailed Description

Main interface to database data structures.

Author

Paul Griffiths

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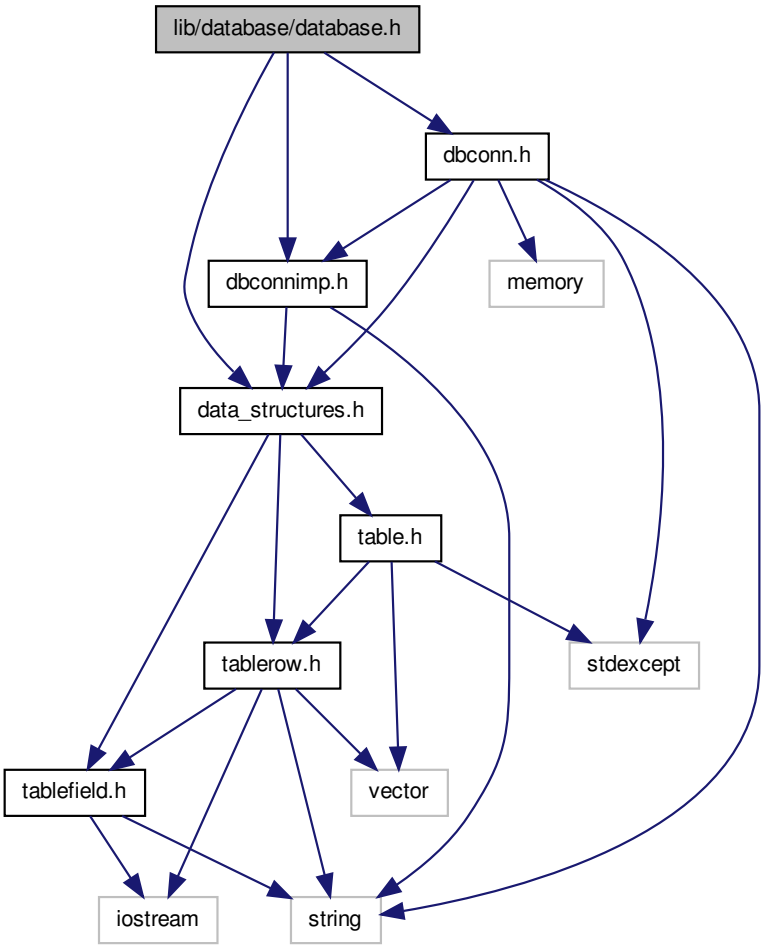
10.5 lib/database/database.h File Reference

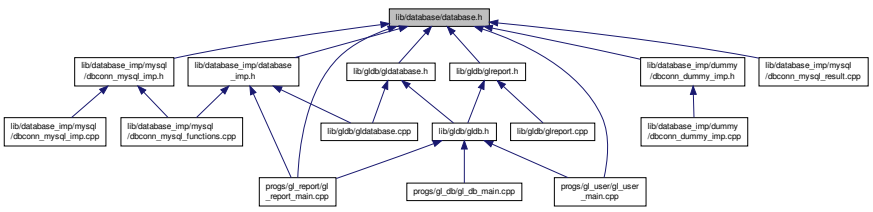
User interface to database functionality.

```
#include "data_structures.h"
#include "dbconnimp.h"
#include "dbconn.h"
```

Include dependency graph for database.h:



This graph shows which files directly or indirectly include this file:



10.5.1 Detailed Description

User interface to database functionality.

Author

Paul Griffiths

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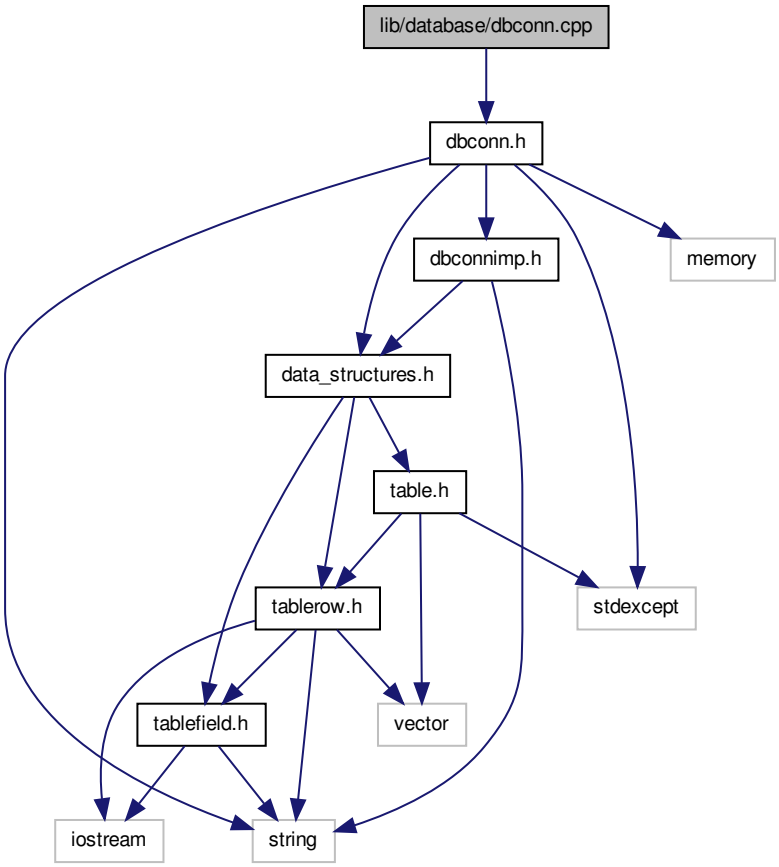
10.6 lib/database/dbconn.cpp File Reference

Implementation of database connection class.

```
#include "dbconn.h"
```

Include dependency graph for dbconn.cpp:



10.6.1 Detailed Description

Implementation of database connection class.

Author

Paul Griffiths

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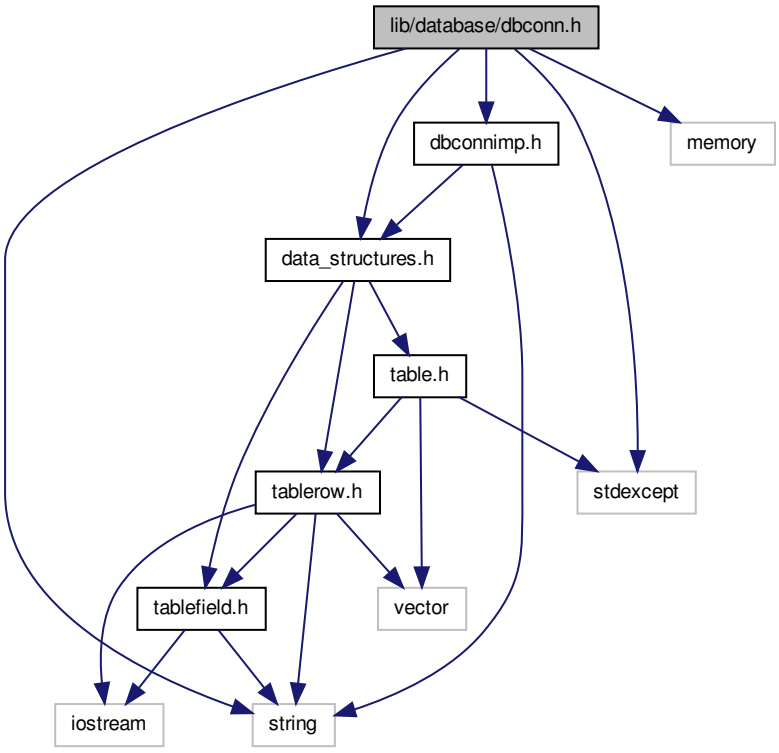
10.7 lib/database/dbconn.h File Reference

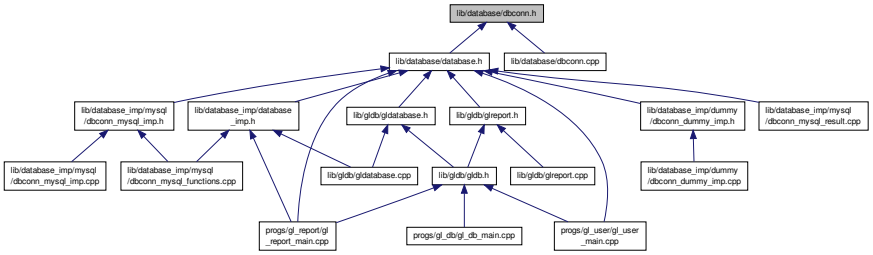
Interface to database connection base class.

```
#include <string>
#include <memory>
#include <stdexcept>
#include "data_structures.h"
#include "dbconnimp.h"
```

Include dependency graph for dbconn.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::DBConnException

  Base database connection exception class.

- class gldb::DBConnCouldNotConnect

  Could not connect to database exception class.

- class gldb::DBConnCouldNotQuery

  Could not execute database query exception class.

- class gldb::DBConn

  Database connection class.

10.7.1 Detailed Description

Interface to database connection base class.

Author

Paul Griffiths

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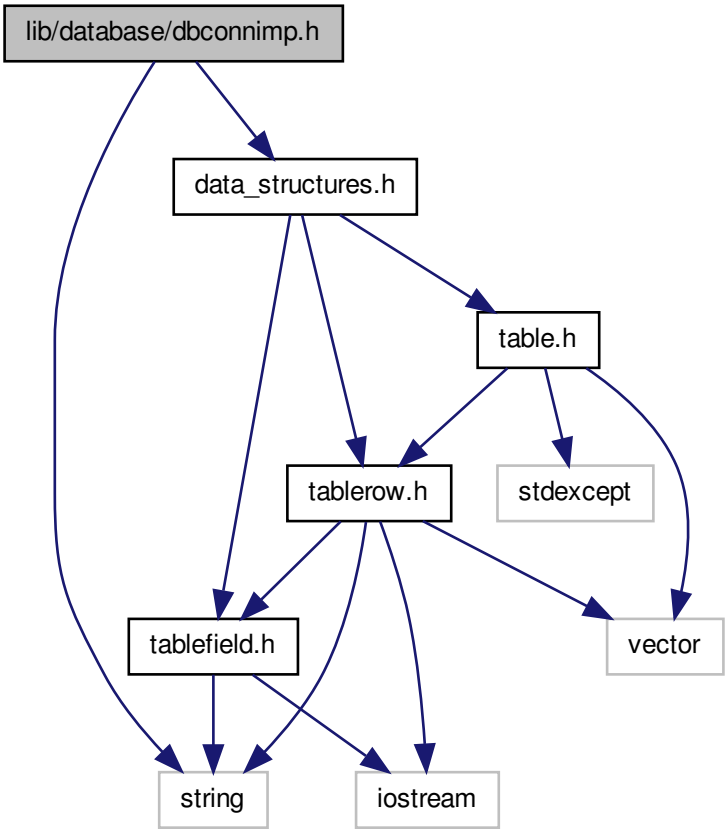
10.8 lib/database/dbconnimp.h File Reference

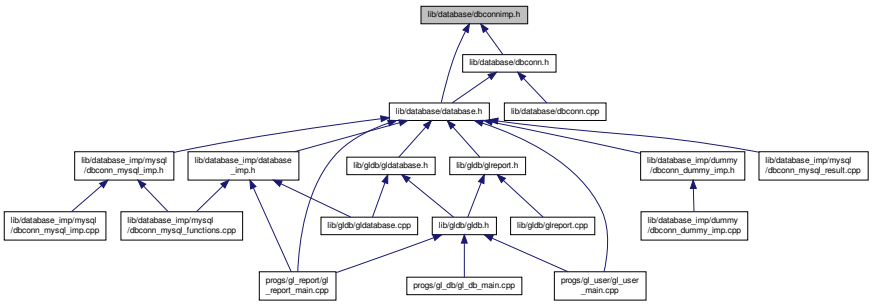
Interface to abstract database implementation base class.

```
#include <string>
#include "data_structures.h"
```

Include dependency graph for dbconnimp.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::DBConnImp

  Abstract database implementation base class.

10.8.1 Detailed Description

Interface to abstract database implementation base class.

Author

Paul Griffiths

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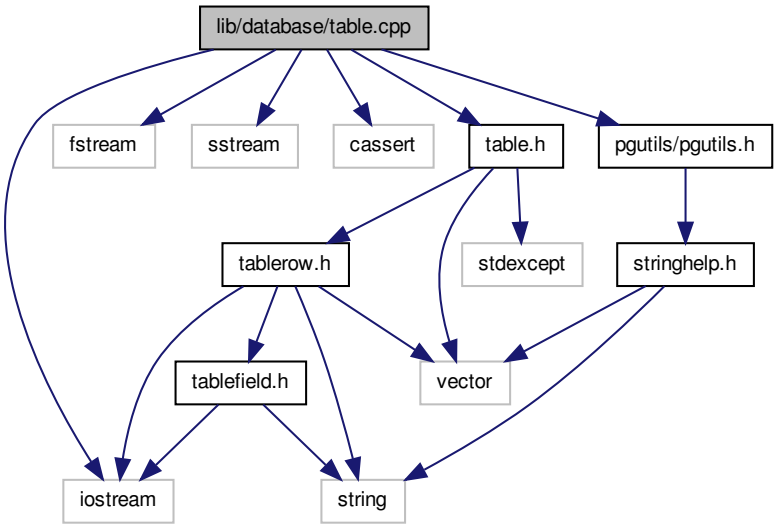
10.9 lib/database/table.cpp File Reference

Implementation of database table data structure.

```
#include <iostream>
#include <fstream>
#include <sstream>
#include <cassert>
#include "table.h"
#include "pgutils/pgutils.h"
```

Include dependency graph for table.cpp:



10.9.1 Detailed Description

Implementation of database table data structure.

Author

Paul Griffiths

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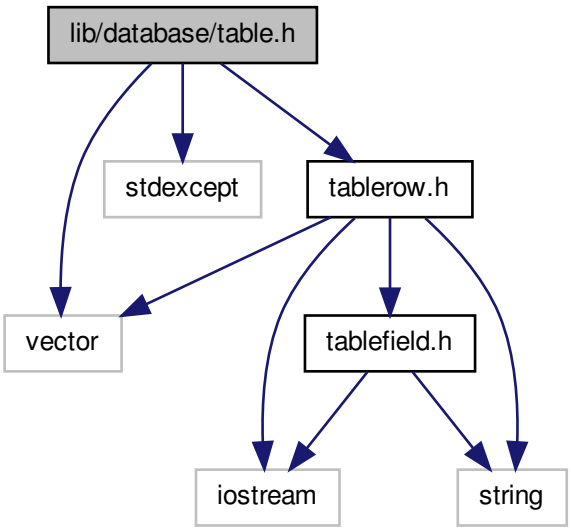
10.10 lib/database/table.h File Reference

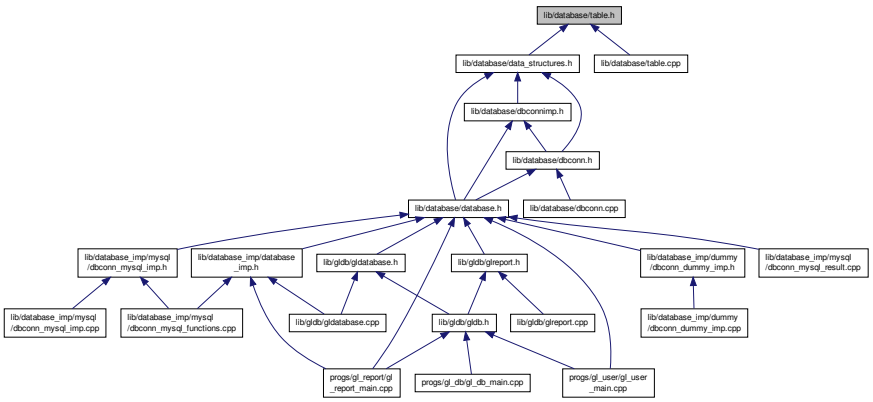
Interface to database table data structure.

```
#include <vector>
#include <stdexcept>
#include "tablerow.h"
```

Include dependency graph for table.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::TableException
  Base database connection exception class.
- class gldb::TableNoSuchField
  No such field exception class.
- class gldb::TableNoSuchRecord
  No such record exception class.
- class gldb::TableMismatchedRecordLength
  Mismatched record length exception class.
- class gldb::TableBadInputFile
  Could not connect to database exception class.
- class gldb::TableCouldNotOpenInputFile
  Could not connect to database exception class.
- class gldb::Table
  Database table class.

10.10.1 Detailed Description

Interface to database table data structure.

Author

Paul Griffiths

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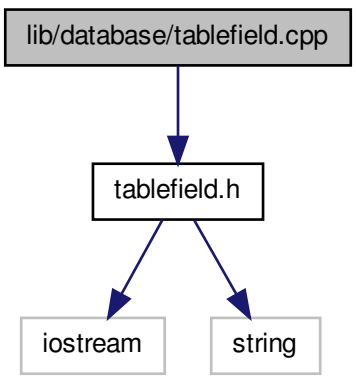
10.11 lib/database/tablefield.cpp File Reference

Implementation of database table field class.

```
#include "tablefield.h"
```

Include dependency graph for tablefield.cpp:



10.11.1 Detailed Description

Implementation of database table field class.

Author

Paul Griffiths

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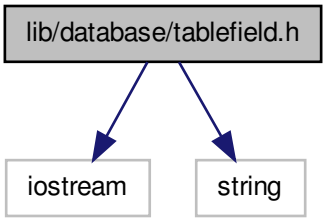
10.12 lib/database/tablefield.h File Reference

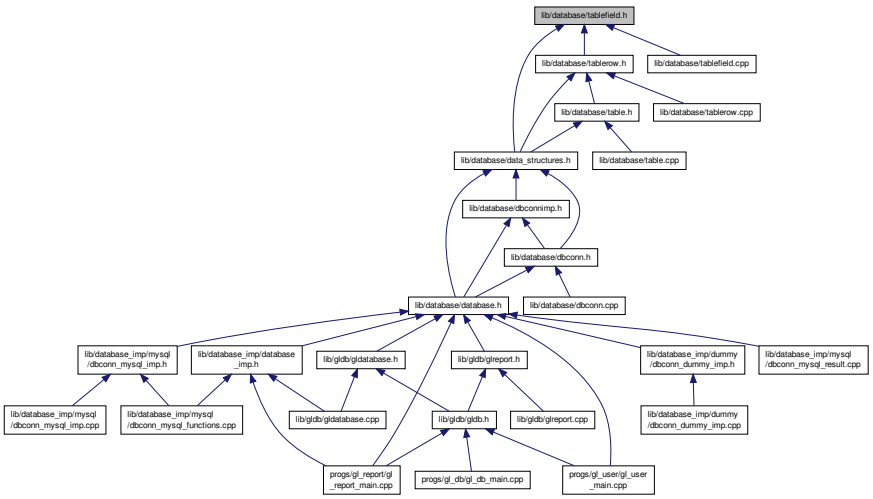
Interface to database table field class.

```
#include <iostream>
#include <string>
```

Include dependency graph for tablefield.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::TableField

  Database table field class.

Functions

- std::ostream & **gldb::operator**<< (std::ostream &out, const TableField &field)

  Overridden << operator for printing a field.

10.12.1 Detailed Description

Interface to database table field class.

Author

Paul Griffiths

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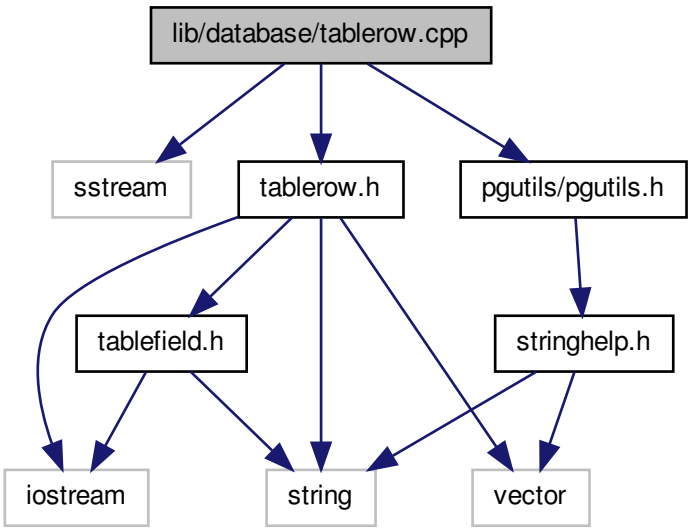
10.13 lib/database/tablerow.cpp File Reference

Implementation of database table row data structure.

```
#include <sstream>
#include "tablerow.h"
#include "pgutils/pgutils.h"
```

Include dependency graph for tablerow.cpp:



10.13.1 Detailed Description

Implementation of database table row data structure.

Author

Paul Griffiths

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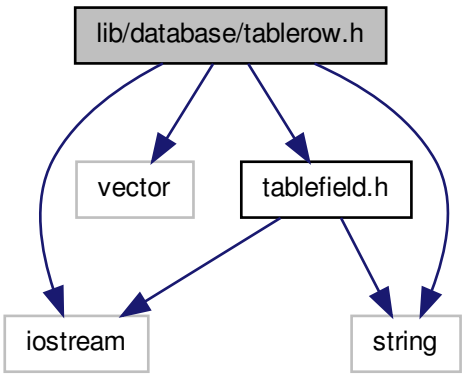
10.14 lib/database/tablerow.h File Reference

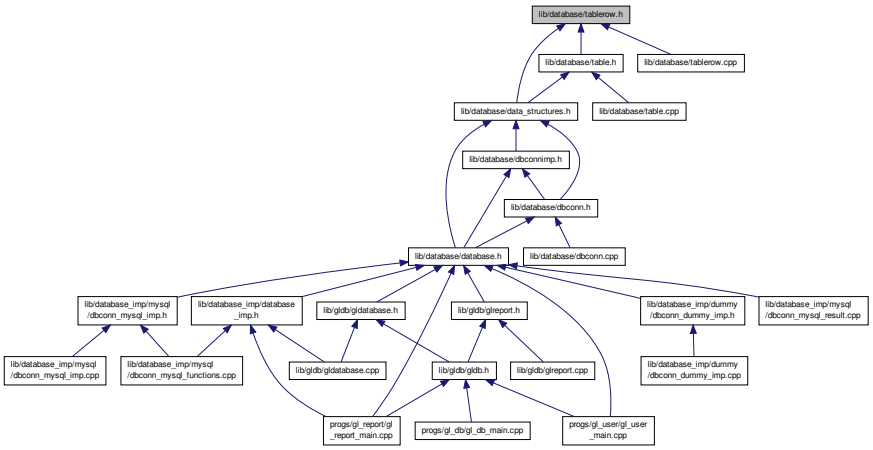
Interface to database table row data structure.

```
#include <iostream>
#include <vector>
#include <string>
#include "tablefield.h"
```

Include dependency graph for tablerow.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::TableRow

  Database table row class.

10.14.1 Detailed Description

Interface to database table row data structure.

Author

Paul Griffiths

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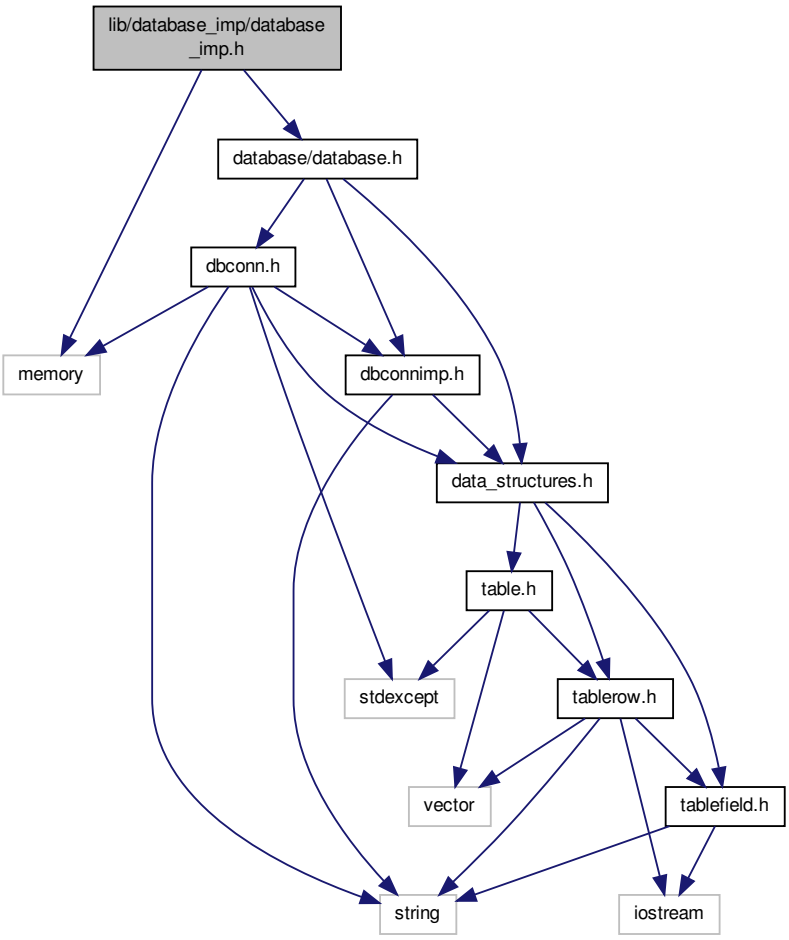
10.15 lib/database_imp/database_imp.h File Reference

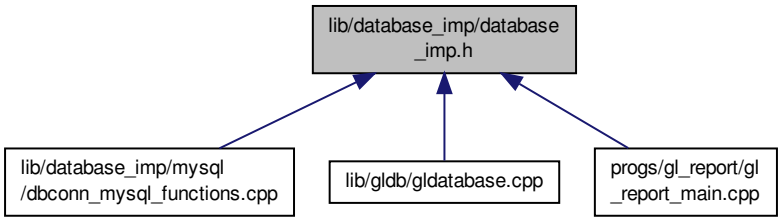
Interface to database implementation factory function.

```
#include <memory>
#include "database/database.h"
```

Include dependency graph for database_imp.h:



This graph shows which files directly or indirectly include this file:



Functions

- DBConnImp * gldb::get_connection (const std::string &database, const std::string &hostname, const std::string &username, const std::string &password)

  Creates and returns a pointer to a database implementation.

- std::string gldb::get_database_type ()

  Returns the name of the compiled-in database type.

10.15.1 Detailed Description

Interface to database implementation factory function.

Author

Paul Griffiths

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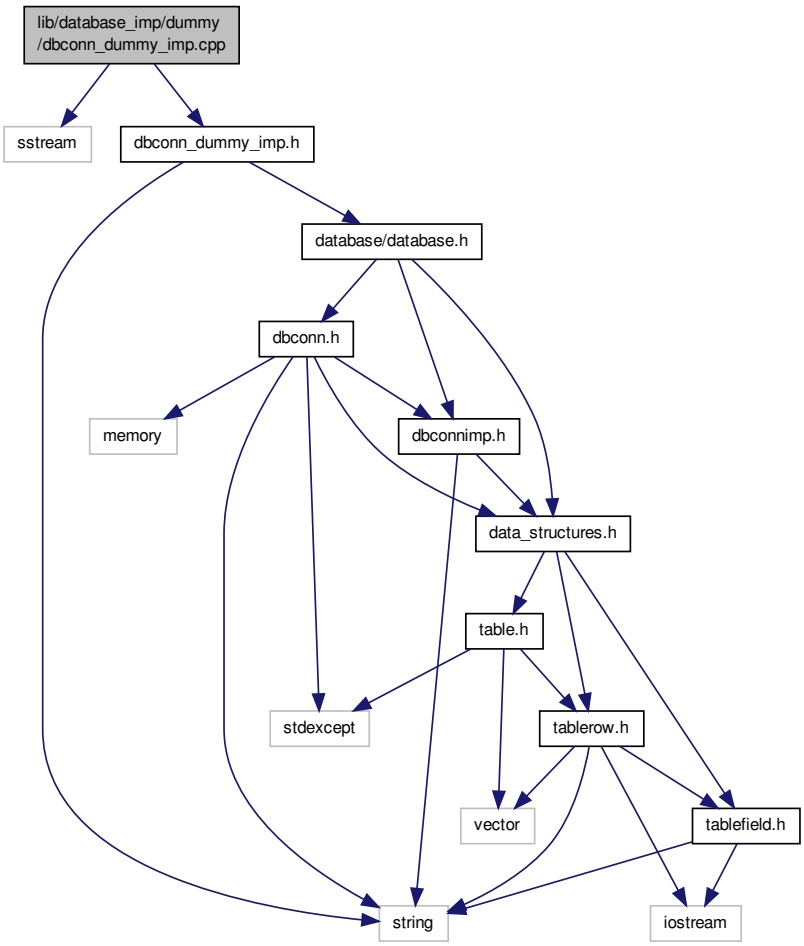
10.16 lib/database_imp/dummy/dbconn_dummy_imp.cpp File Reference

Implementation of Dummy database connection implementation class.

```
#include <sstream>
#include "dbconn_dummy_imp.h"
```

Include dependency graph for dbconn_dummy_imp.cpp:



10.16.1 Detailed Description

Implementation of Dummy database connection implementation class.

Author

Paul Griffiths

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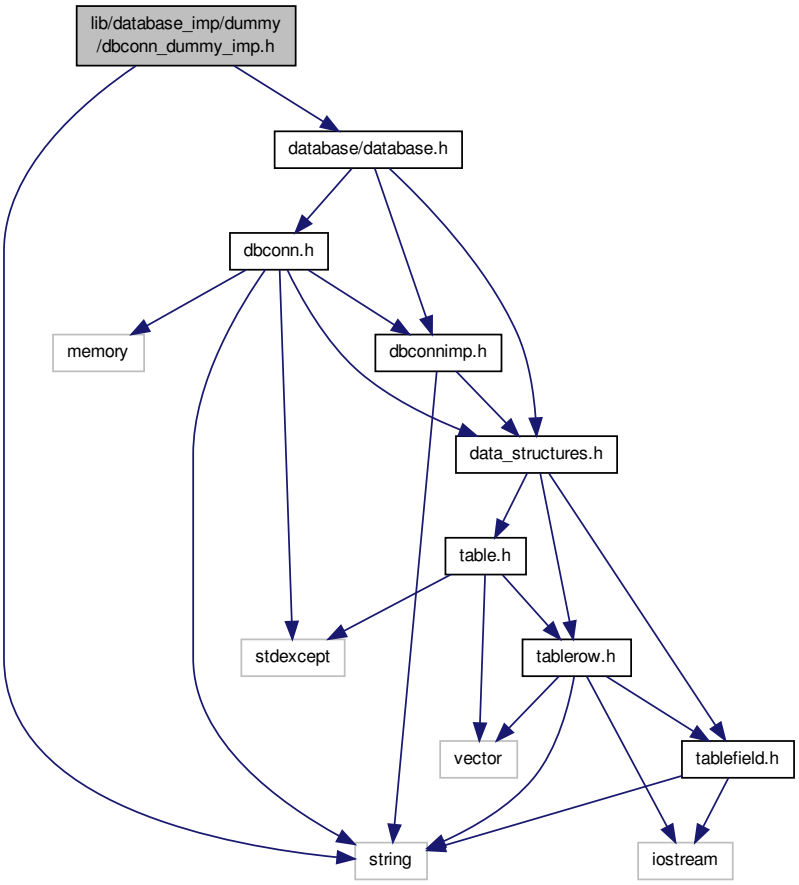
10.17 lib/database_imp/dummy/dbconn_dummy_imp.h File Reference

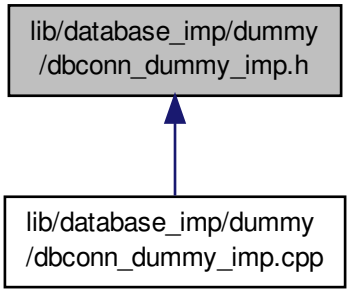
Interface to dummy database connection implementation class.

```
#include <string>
#include "database/database.h"
```

Include dependency graph for dbconn_dummy_imp.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::DBConnDummy

  Dummy database implementation class.

10.17.1 Detailed Description

Interface to dummy database connection implementation class.

Author

Paul Griffiths

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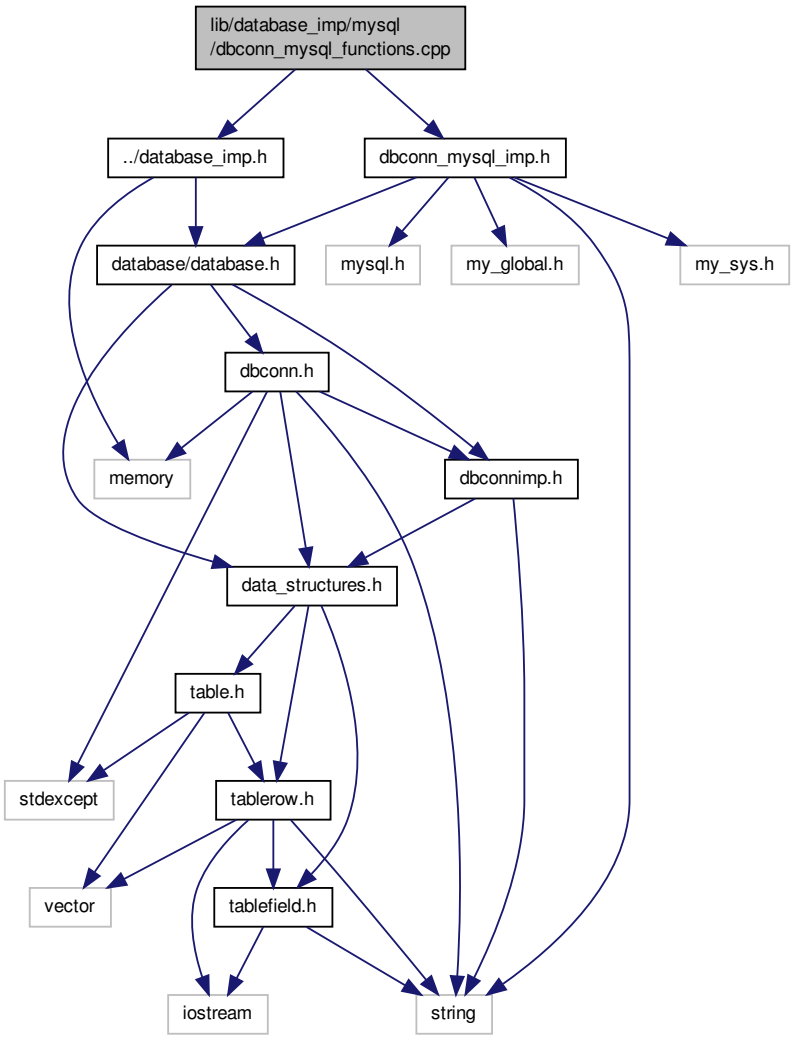
10.18 lib/database_imp/mysql/dbconn_mysql_functions.cpp File Reference

Implementation of MySQL implementation factory function.

```
#include "../database_imp.h"
#include "dbconn_mysql_imp.h"
```

Include dependency graph for dbconn_mysql_functions.cpp:



10.18.1 Detailed Description

Implementation of MySQL implementation factory function.

Author

Paul Griffiths

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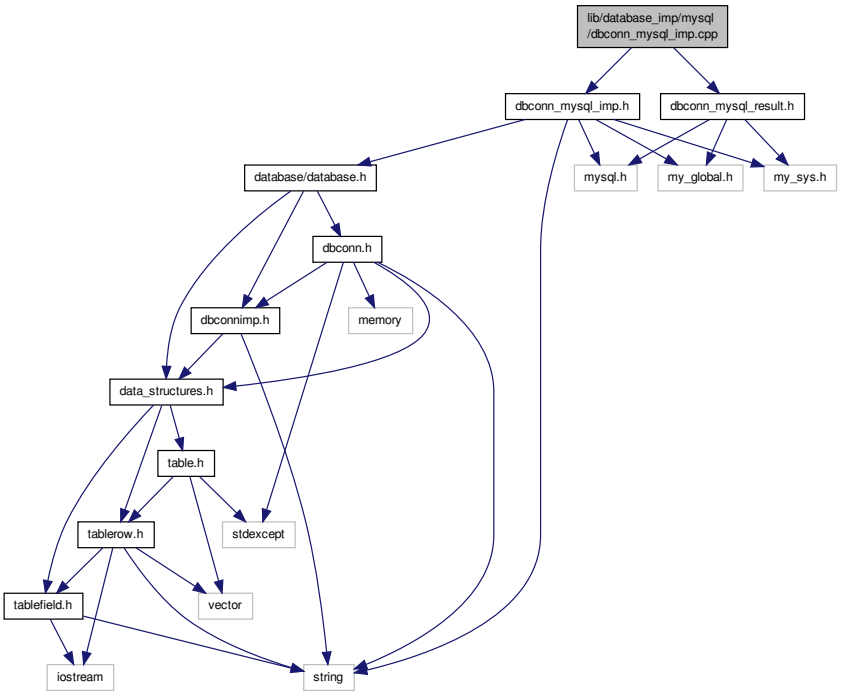
10.19 lib/database_imp/mysql/dbconn_mysql_imp.cpp File Reference

Implementation of MySQL database connection implementation class.

```
#include "dbconn_mysql_imp.h"
#include "dbconn_mysql_result.h"
```

Include dependency graph for dbconn_mysql_imp.cpp:



Functions

- static TableRow get_field_names (MySQLResult &result)

  Gets field names from a MySQL result structure.
- static TableRow get_row (MySQLResult &result, MYSQL_ROW row)

  Creates a TableRow from a MySQL result row.

10.19.1 Detailed Description

Implementation of MySQL database connection implementation class.

Author

Paul Griffiths

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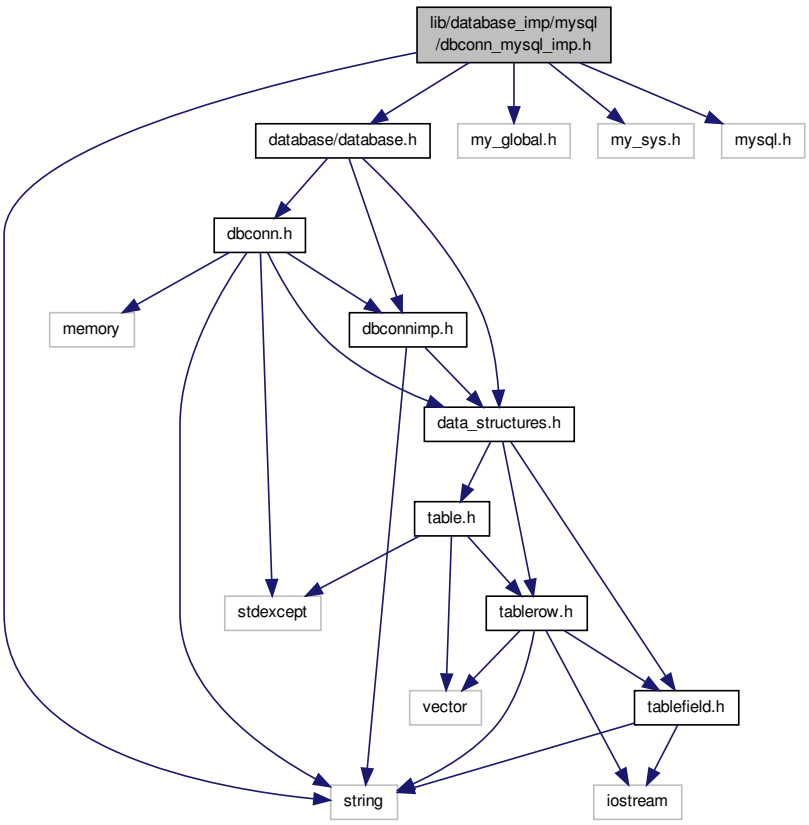
10.20 lib/database_imp/mysql/dbconn_mysql_imp.h File Reference

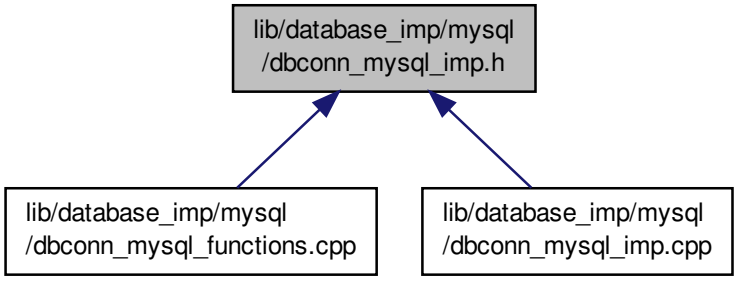
Interface to MySQL database connection implementation class.

```
#include <string>
#include "database/database.h"
#include <my_global.h>
#include <my_sys.h>
#include <mysql.h>
```

Include dependency graph for dbconn_mysql_imp.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::DBConnMySQL

  MySQL database implementation class.

10.20.1 Detailed Description

Interface to MySQL database connection implementation class.

Author

Paul Griffiths

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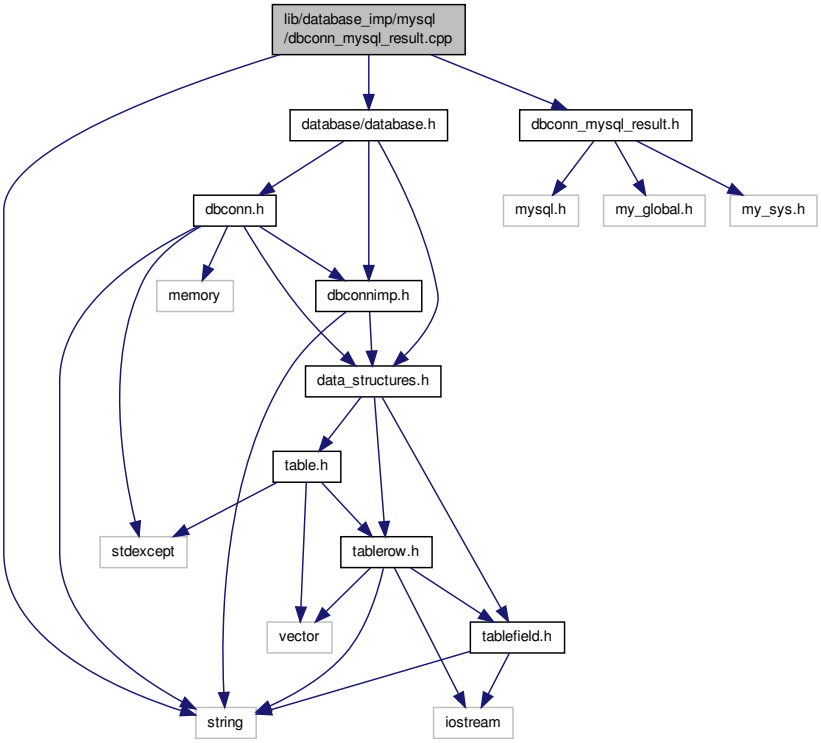
10.21 lib/database_imp/mysql/dbconn_mysql_result.cpp File Reference

Implementation of MySQL result structure resource handle class.

```
#include <string>
#include "database/database.h"
#include "dbconn_mysql_result.h"
```

Include dependency graph for dbconn_mysql_result.cpp:



10.21.1 Detailed Description

Implementation of MySQL result structure resource handle class.

Author

Paul Griffiths

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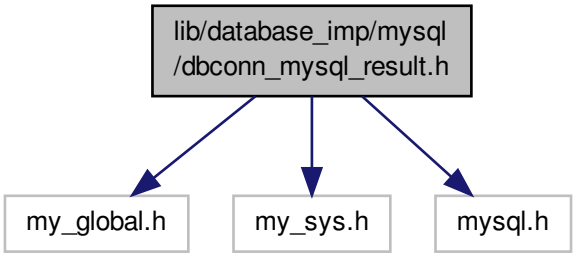
10.22 lib/database_imp/mysql/dbconn_mysql_result.h File Reference

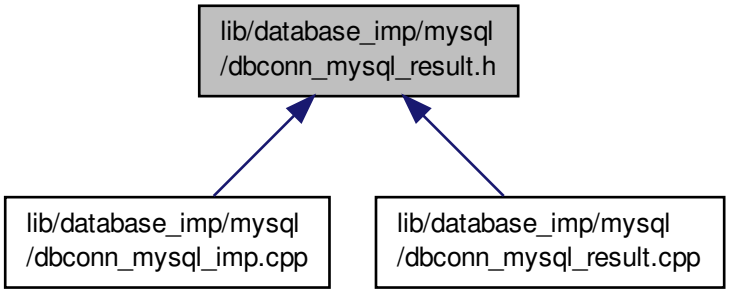
Interface to MySQL result structure resource handle class.

```
#include <my_global.h>
#include <my_sys.h>
#include <mysql.h>
```

Include dependency graph for dbconn_mysql_result.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gldb::MySQLResult

  MySQL result structure class.

10.22.1 Detailed Description

Interface to MySQL result structure resource handle class.

Author

Paul Griffiths

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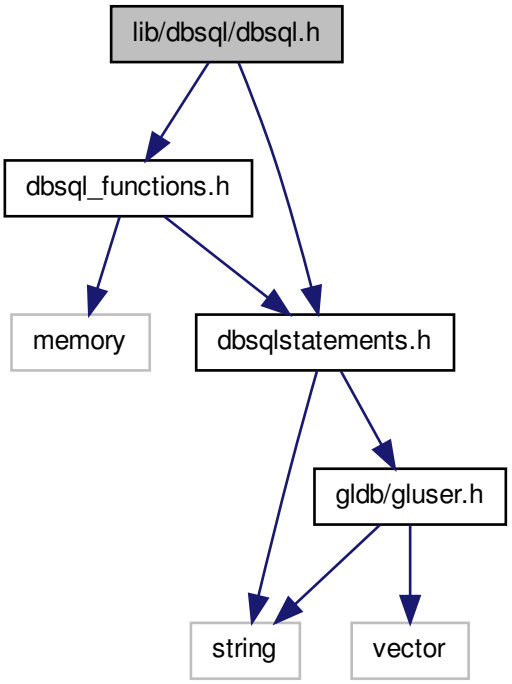
10.23 lib/dbsql/dbsql.h File Reference

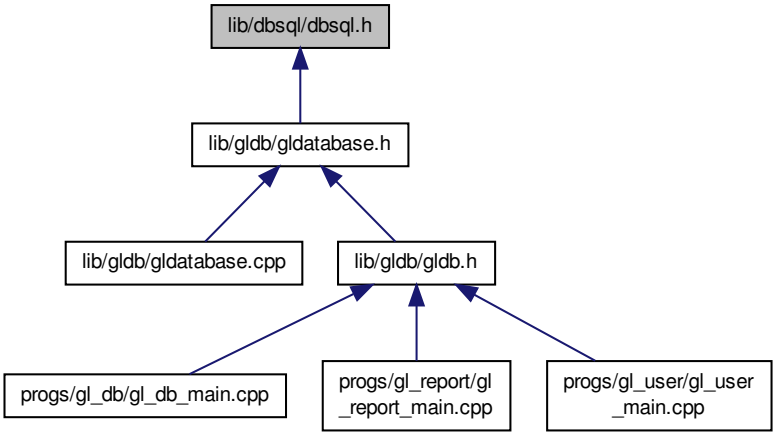
User interface to DBSQL module.

```
#include "dbsql_functions.h"
#include "dbsqlstatements.h"
```

Include dependency graph for dbsql.h:



This graph shows which files directly or indirectly include this file:



10.23.1 Detailed Description

User interface to DBSQL module.

Author

Paul Griffiths

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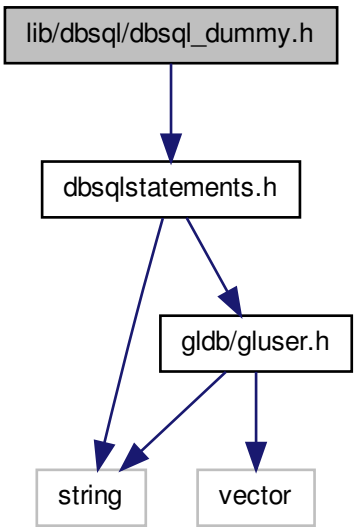
10.24 lib/dbsql/dbsql_dummy.h File Reference

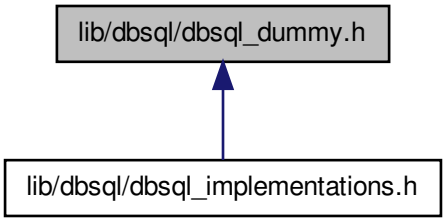
Interface to dummy SQL statement class.

```
#include "dbsqlstatements.h"
```

Include dependency graph for dbsql_dummy.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::DBSQLDummy

  Dummy SQL statements class.

10.24.1 Detailed Description

Interface to dummy SQL statement class.

Author

Paul Griffiths

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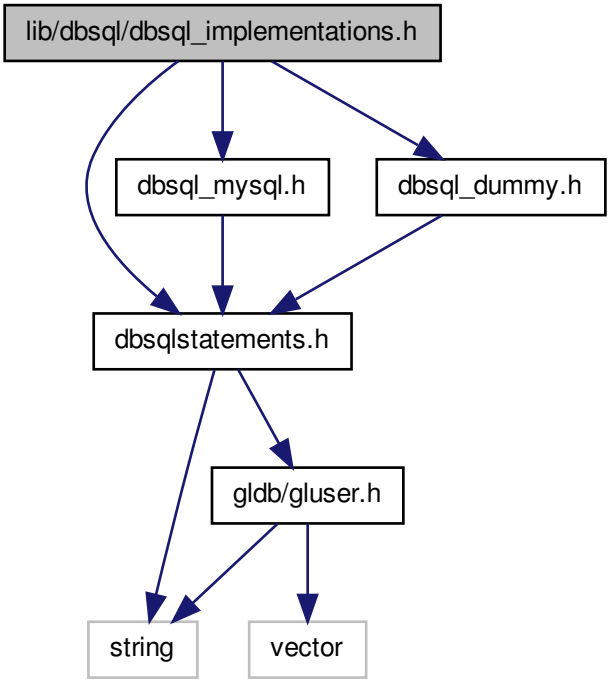
10.25 lib/dbsql/dbsql_implementations.h File Reference

Aggregation header for DBSqlStatements implementations.

```
#include "dbsqlstatements.h"
#include "dbsql_mysql.h"
#include "dbsql_dummy.h"
```

Include dependency graph for dbsql_implementations.h:



10.25.1 Detailed Description

Aggregation header for DBSqlStatements implementations.

Author

Paul Griffiths

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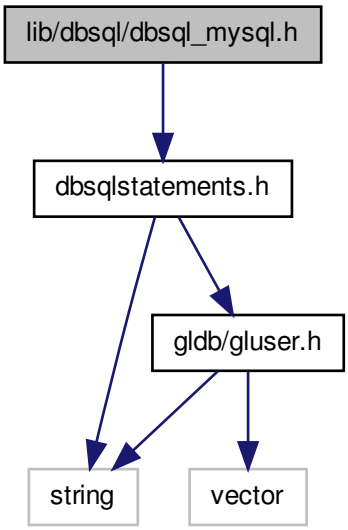
10.26 lib/dbsql/dbsql_mysql.h File Reference

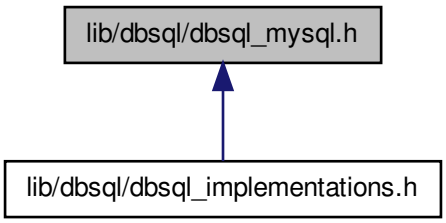
Interface to MySQL SQL statement class.

```
#include "dbsqlstatements.h"
```

Include dependency graph for dbsql_mysql.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::DBSQLMySQL

MySQL SQL statements class.

10.26.1 Detailed Description

Interface to MySQL SQL statement class.

Author

Paul Griffiths

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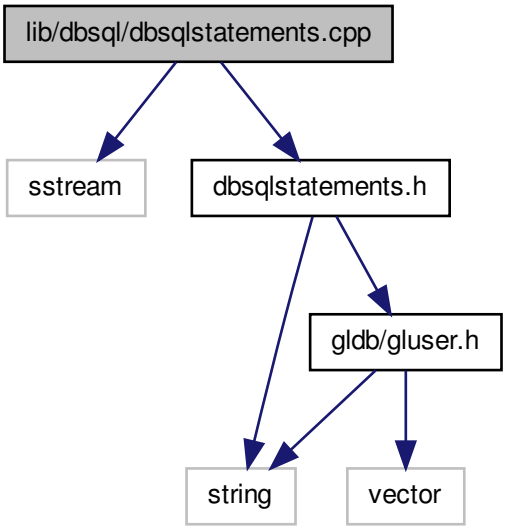
10.27 lib/dbsql/dbsqlstatements.cpp File Reference

Implementation of SQL statement class.

```
#include <sstream>
#include "dbsqlstatements.h"
```

Include dependency graph for dbsqlstatements.cpp:



10.27.1 Detailed Description

Implementation of SQL statement class.

Author

Paul Griffiths

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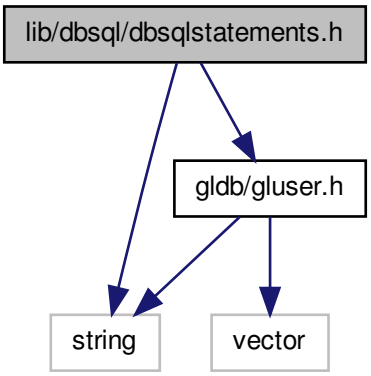
10.28 lib/dbsql/dbsqlstatements.h File Reference

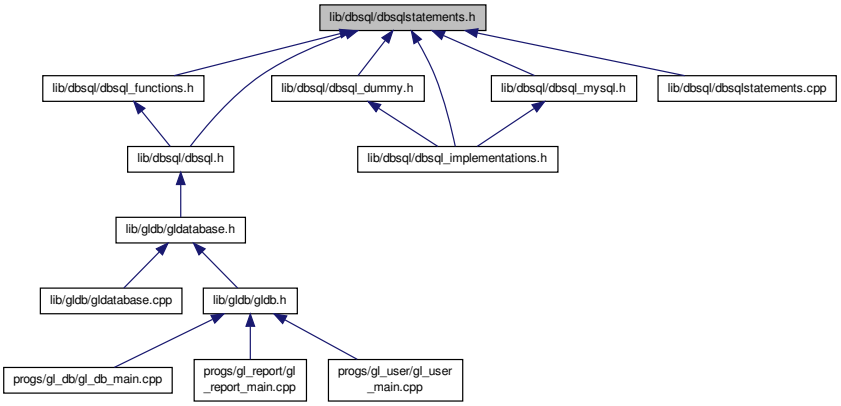
Implementation of SQL module standalone functions.

```
#include <string>
#include "gldb/gluser.h"
```

Include dependency graph for dbsqlstatements.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::DBSQLStatements

  SQL statements class.

10.28.1 Detailed Description

Implementation of SQL module standalone functions. Interface to SQL statements class.

Interface to SQL module standalone functions.

Author

Paul Griffiths

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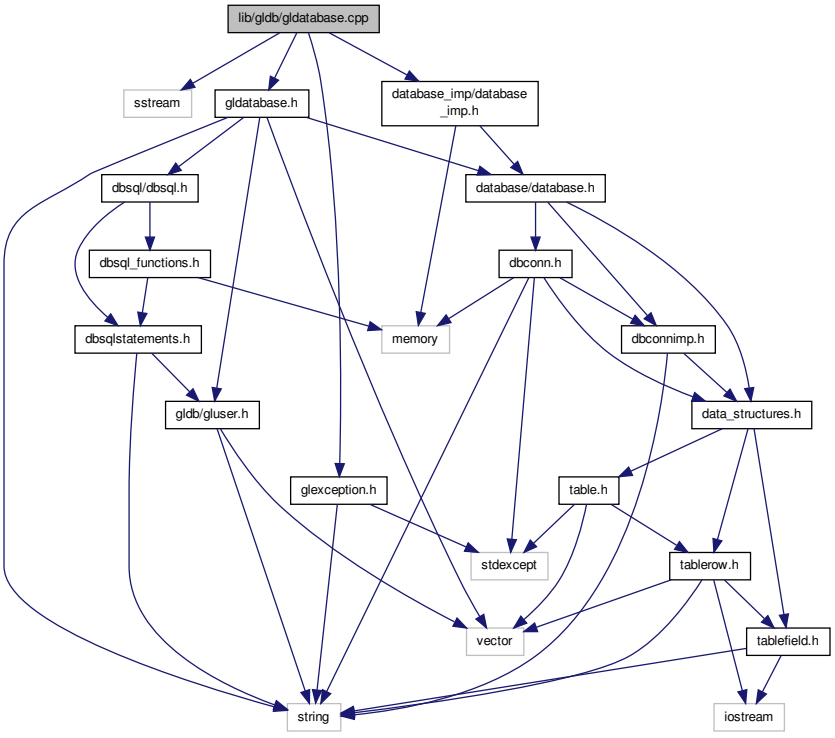
10.29 lib/gldb/gldatabase.cpp File Reference

Implementation of General Ledger database class.

```
#include <sstream>
#include "gldatabase.h"
#include "glexception.h"
#include "database_imp/database_imp.h"
```

Include dependency graph for gldatabase.cpp:



Functions

- static bool boolstring_to_bool (const std::string &bs)

  Converts a string representation of a bool to a bool.
- **m_views** ({"current_trial_balance","check_total","all_jes"})

10.29.1 Detailed Description

Implementation of General Ledger database class.

Author

Paul Griffiths

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10.29.2 Function Documentation

10.29.2.1 static bool boolstring_to_bool (const std::string & *bs*) [static]

Converts a string representation of a bool to a bool.

Parameters

bs	The bool string.

Returns

`true` if `bs` contains "1" or "TRUE", `false` if `bs` contains "0" or "FALSE".

Exceptions

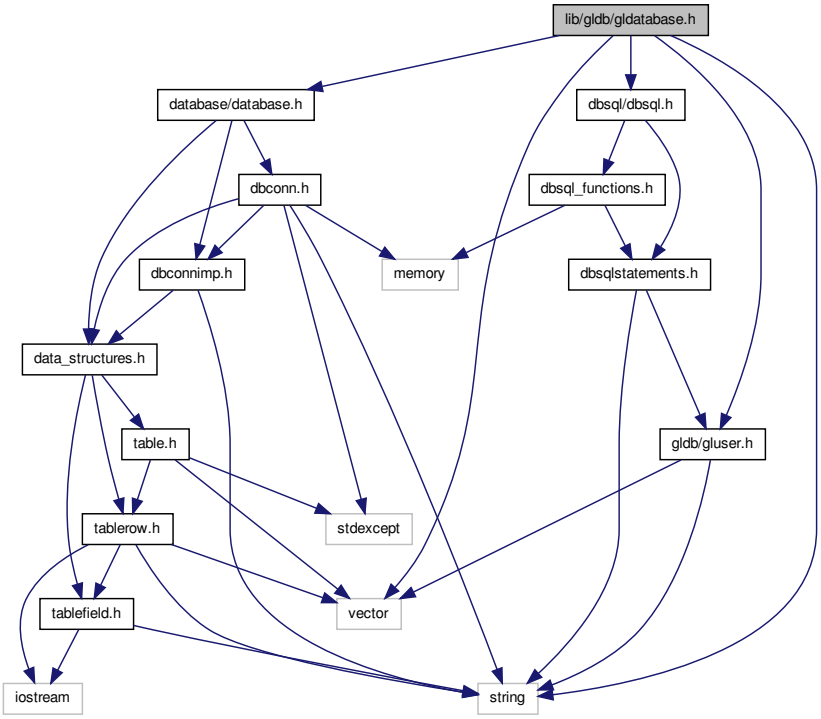
GLDBException	if `bs` contains any other value.

10.30 lib/gldb/gldatabase.h File Reference

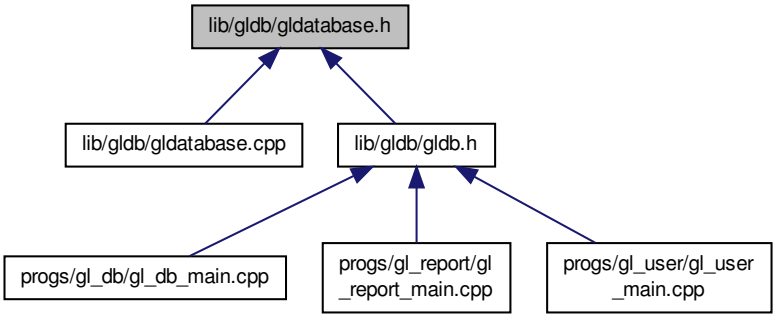
Interface to General Ledger database class.

```
#include <vector>
#include <string>
#include "database/database.h"
#include "dbsql/dbsql.h"
#include "gluser.h"
```

Include dependency graph for gldatabase.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::GLDatabase

  General ledger database class.

10.30.1 Detailed Description

Interface to General Ledger database class.

Author

Paul Griffiths

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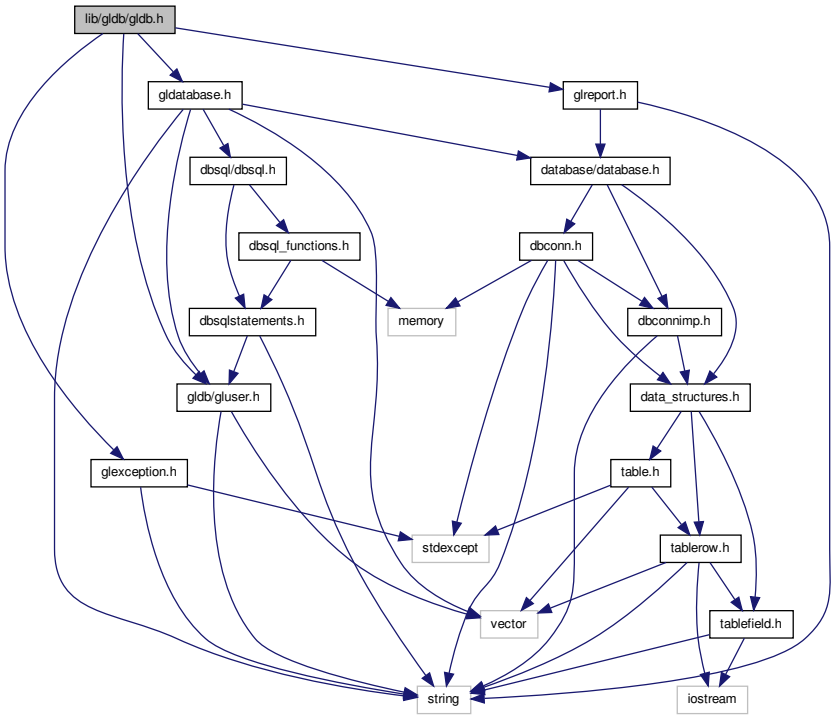
10.31 lib/gldb/gldb.h File Reference

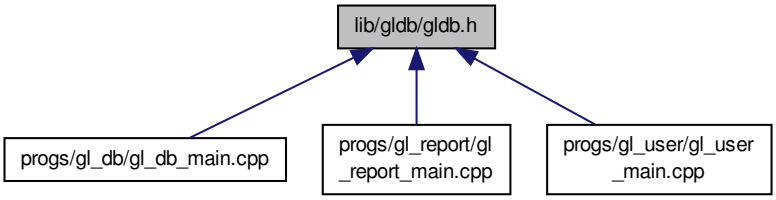
User interface to General Ledger database module.

```
#include "glexception.h"
#include "gldatabase.h"
#include "gluser.h"
#include "glreport.h"
```

Include dependency graph for gldb.h:



This graph shows which files directly or indirectly include this file:



10.31.1 Detailed Description

User interface to General Ledger database module.

Author

Paul Griffiths

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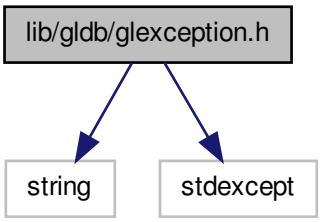
10.32 lib/gldb/glexception.h File Reference

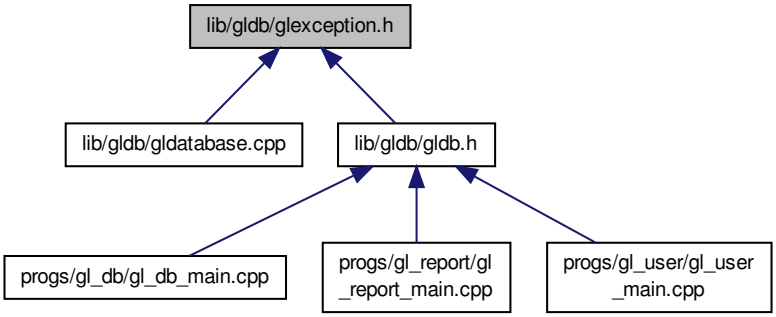
Interface to General Ledger base exception class.

```
#include <string>
#include <stdexcept>
```

Include dependency graph for glexception.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::GLDBException

  Base general ledger database exceptionc class.

10.32.1 Detailed Description

Interface to General Ledger base exception class.

Author

Paul Griffiths

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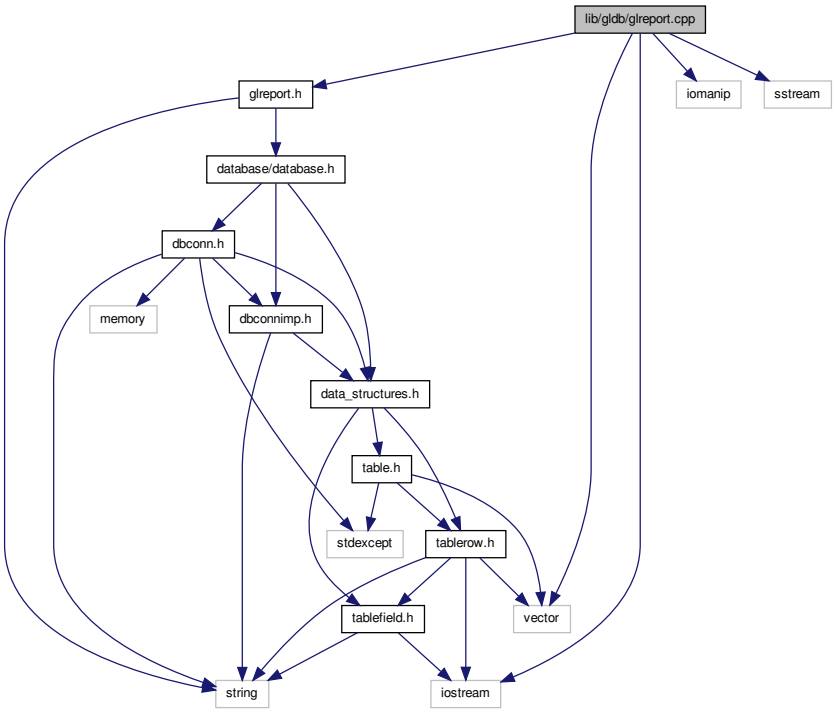
10.33 lib/gldb/glreport.cpp File Reference

Implementation of report class.

```
#include <vector>
#include <iomanip>
#include <iostream>
#include <sstream>
#include "glreport.h"
```

Include dependency graph for glreport.cpp:



Functions

- static std::vector< size_t > max_column_widths (const gldb::Table &table)

  Calculates the maximum required column widths for a table.
- static void grow_widths (std::vector< size_t > &widths, const TableRow &row)

  Increments a vector of required column widths.
- static std::string separator_row (const std::vector< size_t > &widths)

  Returns a decorated separator row for a table.
- static std::string plain_row (const TableRow &row, const std::vector< size_t > &widths)

  Returns a row for a plain report.
- static std::string decorated_row (const TableRow &row, const std::vector< size_t > &widths)

  Returns a row for a decorated report.

10.33.1 Detailed Description

Implementation of report class. Implementation of report class

Author

Paul Griffiths

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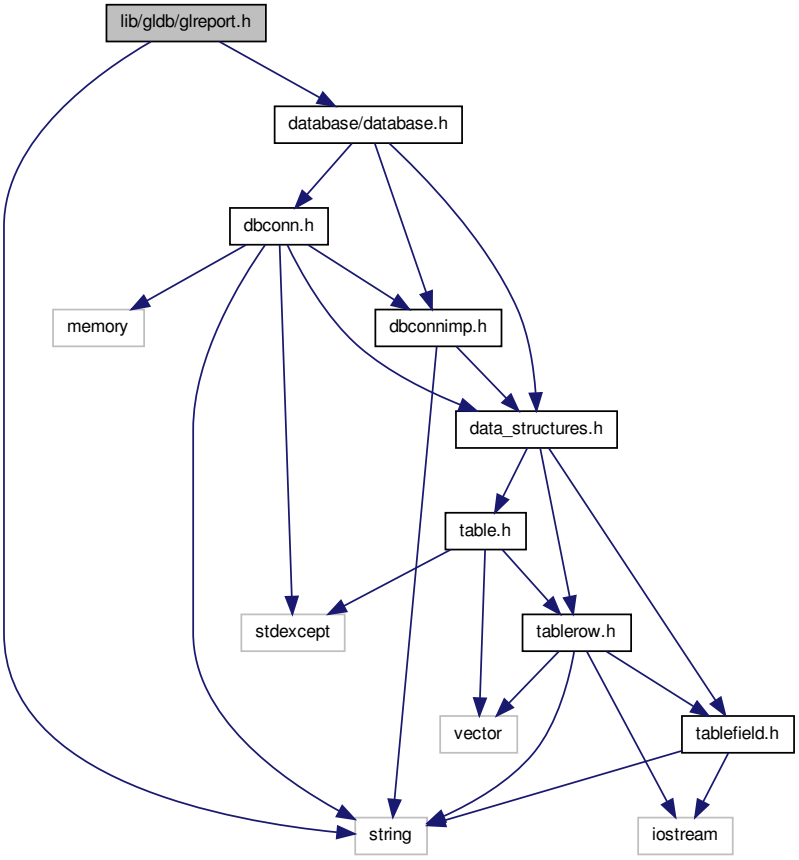
10.34 lib/gldb/glreport.h File Reference

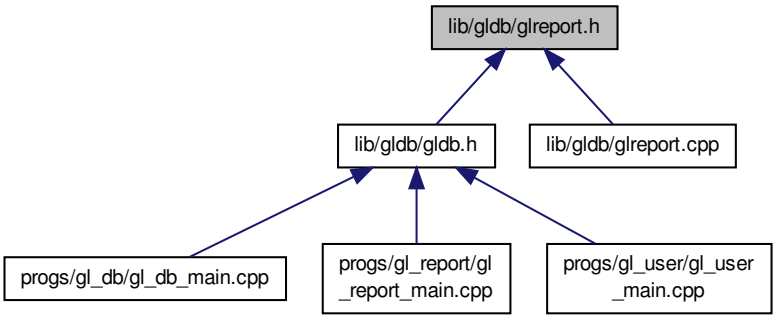
Interface to report class.

```
#include <string>
#include <database/database.h>
```

Include dependency graph for glreport.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::GLReport

  General ledger report class.

Functions

- std::string genleg::plain_report_from_table (const gldb::Table &table)

  Creates a plain report from a table.
- std::string genleg::decorated_report_from_table (const gldb::Table &table)

  Creates a decorated report from a table.

10.34.1 Detailed Description

Interface to report class. Interface to report class

Author

Paul Griffiths

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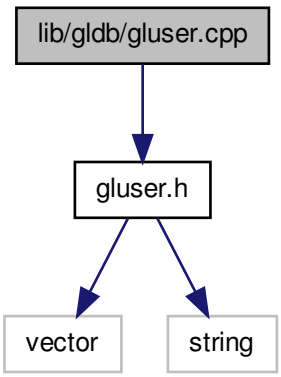
10.35 lib/gldb/gluser.cpp File Reference

Implementation of user class.

```
#include "gluser.h"
```

Include dependency graph for gluser.cpp:



10.35.1 Detailed Description

Implementation of user class.

Author

Paul Griffiths

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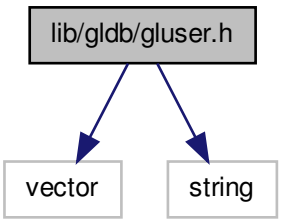
10.36 lib/gldb/gluser.h File Reference

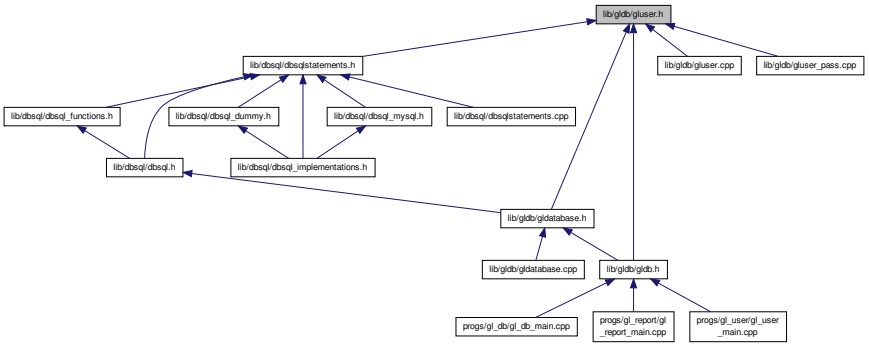
Interface to user class.

```
#include <vector>
#include <string>
```

Include dependency graph for gluser.h:



This graph shows which files directly or indirectly include this file:



Classes

- class genleg::GLUser

  General ledger user class.

10.36.1 Detailed Description

Interface to user class.

Author

Paul Griffiths

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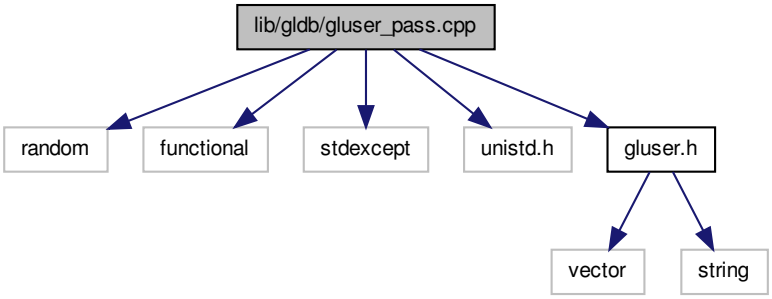
10.37 lib/gldb/gluser_pass.cpp File Reference

Implementation of password functions for user class.

```
#include <random>
#include <functional>
#include <stdexcept>
#include <unistd.h>
#include "gluser.h"
```

Include dependency graph for gluser_pass.cpp:



Macros

- #define _XOPEN_SOURCE 600

Functions

- static std::string generate_salt ()

  Generates a random two-character salt for crypt()

10.37.1 Detailed Description

Implementation of password functions for user class.

Todo Implement a better form of password encryption. In particular, these functions are not re-entrant, and only use the first 8 characters of the password.

Author

Paul Griffiths

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10.37.2 Macro Definition Documentation

10.37.2.1 #define _XOPEN_SOURCE 600

UNIX feature test macro

10.37.3 Function Documentation

10.37.3.1 static std::string generate_salt ( ) [static]

Generates a random two-character salt for crypt()

Returns

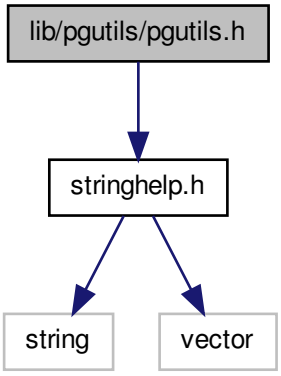
The two-character salt.

10.38 lib/pgutils/pgutils.h File Reference

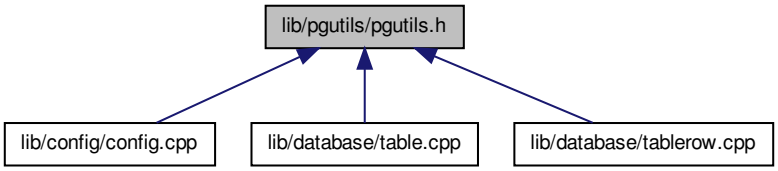
Aggregate interface to general utility functions.

```
#include "stringhelp.h"
```

Include dependency graph for pgutils.h:



This graph shows which files directly or indirectly include this file:



10.38.1 Detailed Description

Aggregate interface to general utility functions.

Author

Paul Griffiths

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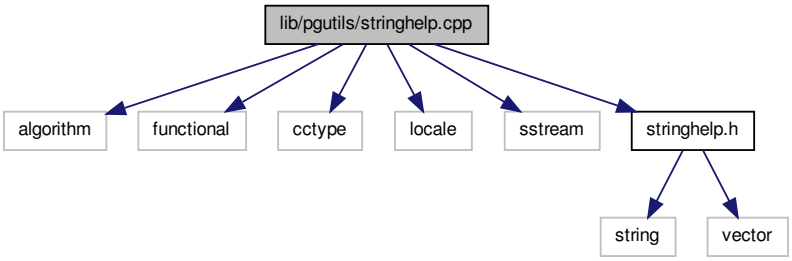
10.39 lib/pgutils/stringhelp.cpp File Reference

Implementation of string helper functions.

```
#include <algorithm>
#include <functional>
#include <cctype>
#include <locale>
#include <sstream>
#include "stringhelp.h"
```

Include dependency graph for stringhelp.cpp:



10.39.1 Detailed Description

Implementation of string helper functions.

Author

Paul Griffiths

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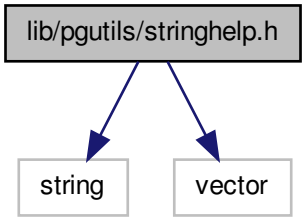
10.40 lib/pgutils/stringhelp.h File Reference

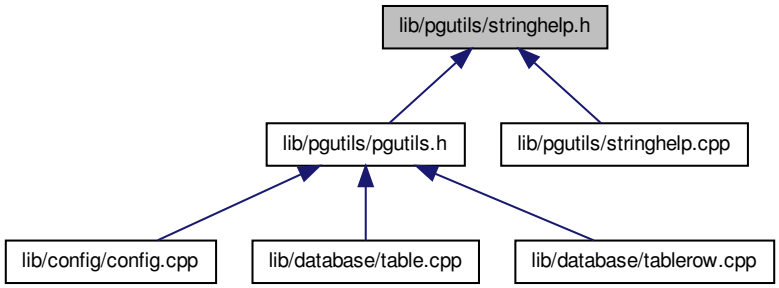
Interface to string helper functions.

```
#include <string>
#include <vector>
```

Include dependency graph for stringhelp.h:



This graph shows which files directly or indirectly include this file:



Functions

- std::string & pgutils::trim_front (std::string &s)

  Trims leading whitespace from a string.
- std::string & pgutils::trim_back (std::string &s)

  Trims trailing whitespace from a string.
- std::string & pgutils::trim (std::string &s)

  Trims leading and trailing whitespace from a string.
- std::vector< std::string > pgutils::split (const std::string &s, const char delim)

  Splits a delimited string into tokens.
- std::vector< std::string > & pgutils::split (std::vector< std::string > &vec, const std::string &s, const char delim)

  Splits a delimited string into tokens.
- bool pgutils::next_content_line (std::istream &ifs, std::string &s)

  Gets the next content line from a stream.
- std::vector< std::string > & pgutils::content_lines (std::vector< std::string > &vec, std::istream &ifs)

  Populates a vector of content lines from a stream.
- std::vector< std::vector < std::string > > & pgutils::split_lines (std::vector< std::vector< std::string >> &vec, std::istream &ifs, const char delim)

Populates a vector of vectors of fields from a stream.

- std::string & pgutils::join (const std::vector< std::string > &vec, std::string &s, const char delim)

  Joins a vector of strings into a delimited line.

- bool pgutils::replace (std::string &str, const std::string &from, const std::string &to)

  Replaces a substring with another string.

10.40.1 Detailed Description

Interface to string helper functions.

Author

Paul Griffiths

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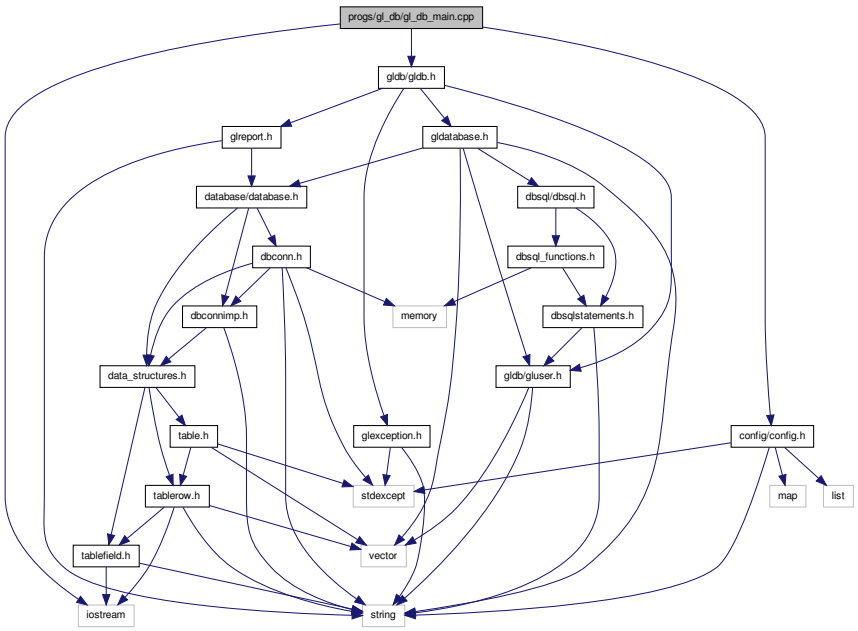
10.41 progs/gl_db/gl_db_main.cpp File Reference

Main functionality for gl_db program.

```
#include <iostream>
#include "gldb/gldb.h"
#include "config/config.h"
```

Include dependency graph for gl_db_main.cpp:



Functions

- static void set_configuration (Config &config, int argc, char *argv[])

Sets program configuration options.

- static bool check_help_and_version (const Config &config)

  Prints help or version messages if requested.

- static bool check_db_parameters (const Config &config)

  Checks if database, hostname and username were provided.

- static void print_usage_message ()

  Prints a program usage message.

- static void print_version_message ()

  Prints a program version message.

- static void print_help_message ()

  Prints a program help message.

- static std::string login (void)

  Gets a password from the terminal.

- int main (int argc, char *argv[])

  Main function.

Variables

- static const char * progname = "gl_db"

  Static variable for program name.

10.41.1 Detailed Description

Main functionality for gl_db program.

Author

Paul Griffiths

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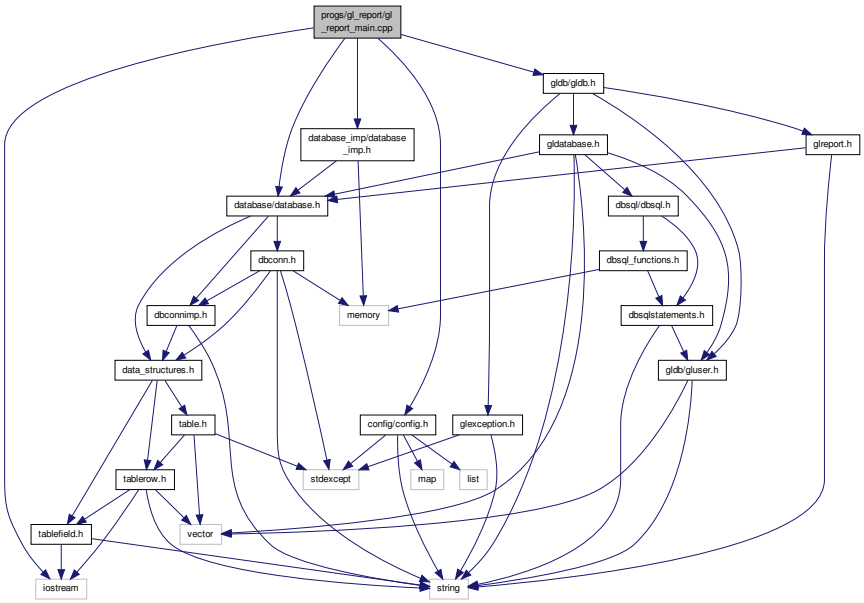
10.42 progs/gl_report/gl_report_main.cpp File Reference

Main functionality for gl_report program.

```
#include <iostream>
#include "database/database.h"
#include "database_imp/database_imp.h"
#include "config/config.h"
#include "gldb/gldb.h"
```

Include dependency graph for gl_report_main.cpp:



Functions

- static void set_configuration (genleg::Config &config, int argc, char ∗argv[])

  Sets program configuration options.
- static void print_usage_message ()

  Prints a program usage message.
- static void print_version_message ()

  Prints a program version message.
- static void print_help_message ()

  Prints a program help message.
- static std::string login (void)

  Gets a password from the terminal.
- int main (int argc, char ∗argv[])

  Main function.

Variables

- static const char ∗ progname = "gl_report"

  Static variable for program name.

10.42.1 Detailed Description

Main functionality for gl_report program.

Author

Paul Griffiths

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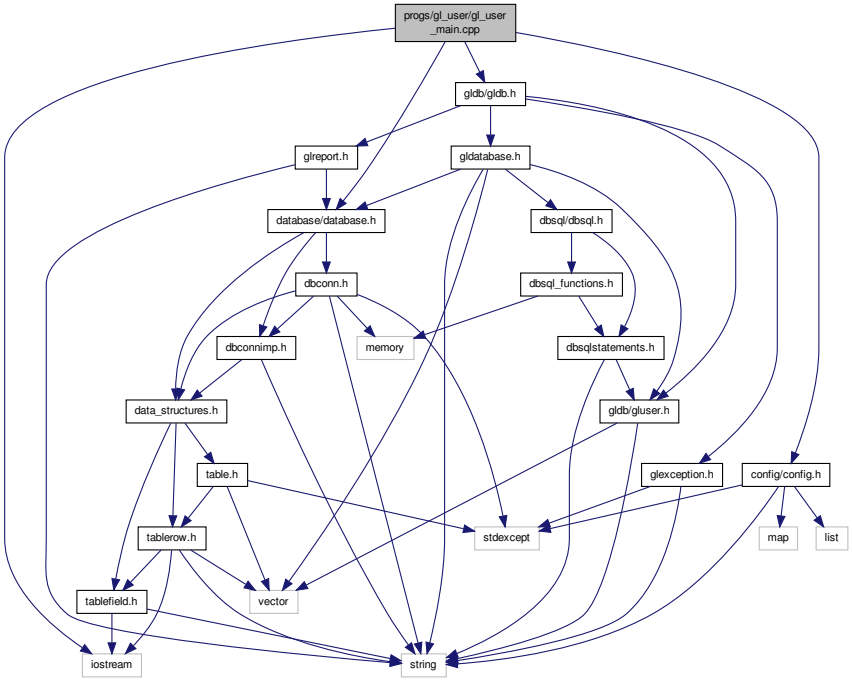
10.43 progs/gl_user/gl_user_main.cpp File Reference

Main functionality for gl_user program.

```
#include <iostream>
#include "gldb/gldb.h"
#include "database/database.h"
#include "config/config.h"
```

Include dependency graph for gl_user_main.cpp:



Functions

- static void set_configuration (Config &config, int argc, char *argv[])

  Sets program configuration options.
- static bool check_help_and_version (const Config &config)

  Prints help or version messages if requested.
- static bool check_db_parameters (const Config &config)

  Checks if database, hostname and username were provided.
- GLUser get_user (Config &config, GLDatabase &gdb)

  Returns a user from either an ID or a name.
- static void show_user_details (const GLUser &user)

  Outputs details for a user.
- static void enable_user (GLUser &user, Config &config, GLDatabase &gdb)

  Enables or disables a user.

- static void set_user_password (GLUser &user, Config &config, GLDatabase &gdb)

  Sets a user's password.
- static void check_user_password (GLUser &user, Config &config)

  Checks a user's password.
- static void print_usage_message ()

  Prints a program usage message.
- static void print_version_message ()

  Prints a program version message.
- static void print_help_message ()

  Prints a program help message.
- static std::string login (void)

  Gets a password from the terminal.
- int main (int argc, char ∗argv[])

  Main function.

Variables

- static const char ∗ progname = "gl_user"

  Static variable for program name.

10.43.1 Detailed Description

Main functionality for gl_user program.

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