



SQL LAB SOFTWARE DOCUMENTATION

Full documentation of SQL LAB Database Management System

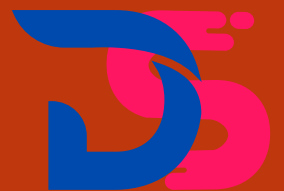


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ABOUT SQL LAB **DATABASE MANAGEMENT** **SYSTEM**

SQL LAB IS DATABASE MANAGEMENT SYSTEM:

A database is a structured collection of data. It may be anything from a simple list to the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as "SQL LAB". Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

SQL LAB IS RELATIONAL:

A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed. The logical model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to-one, one-to-many, unique, required or optional, and "pointers" between different tables. The database enforces these rules, so that with a well-designed database, your application never sees inconsistent, duplicate, orphan, out-of-date, or missing data.

The SQL part of "SQL LAB" stands for "Structured Query Language". SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax.

SQL is defined by the ANSI/ISO SQL Standard. The SQL standard has been evolving since 1986 and several versions exist. In this manual, "SQL-92" refers to the standard released in 1992, "SQL:1999" refers to the standard released in 1999, and "SQL:2003" refers to the current version of the standard. We use the phrase "the SQL standard" to mean the current version of the SQL Standard at any time.

THE SQL LAB DATABASE STUDIO IS VERY FAST, RELIABLE, SCALABLE, AND EASY TO USE:

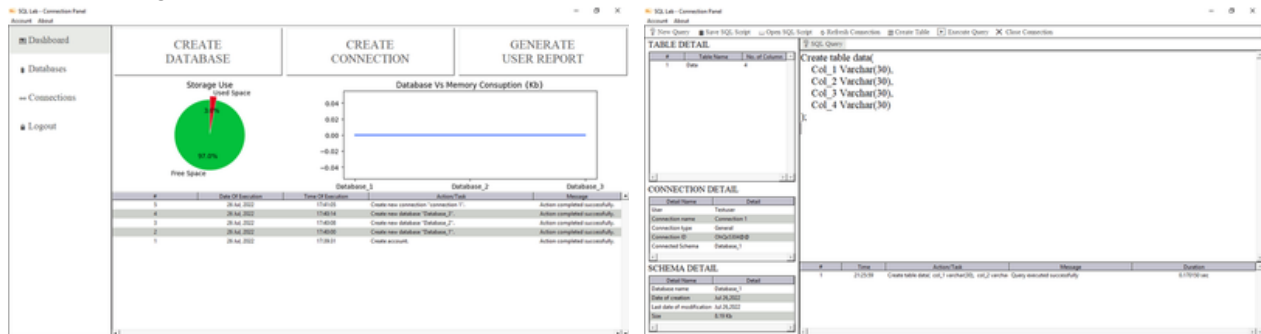
The SQL LAB Database Studio is very fast, reliable, scalable, and easy to use. If that is what you are looking for, you should give it a try. SQL LAB can run comfortably on a desktop or laptop in windows machine, alongside your other applications requiring little or no attention.



FEATURES OF SQL LAB

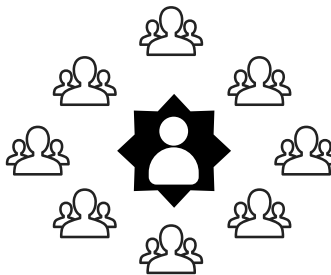
SIMPLE INTERFACE & EASY TO USE FOR BEGINNERS:

The SQL LAB Database Studio has very user friendly interface that's why it is easy to use for beginners.



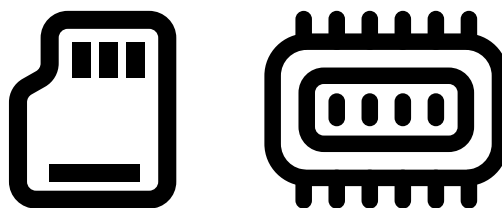
MULTIPLE USERS SYSTEM:

The SQL LAB DBMS has multiple user account system. User can create multiple accounts of multiple types in single system.



SOFTWARE CONSUMES LESS MEMORY AND DRIVE SPACE:

The SQL LAB DBMS has minimum system requirements. It requires 40 - 45 megabytes of RAM and 125 - 145 megabytes of disk space.



ACCESS TO LOCAL FILE WITH .SQLITE, .SQLLAB, .DB AND MANY FILE EXTENSION.

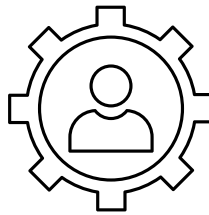
Using SQL LAB DBMS you can access to local system database file with extension of '*.sqlite', '*.sqlite3', '*.sdb', '*.db3', '*.s3db', '*.sl3', '*.db2', '*.s2db', '*.sqlite2', '*.sl2', '*.db'.



TYPES OF ACCOUNTS IN SQL LAB DBMS

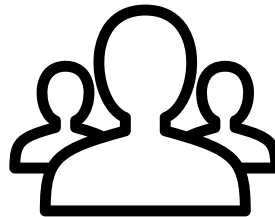
ADMINISTRATOR ACCOUNT :

An administrator account is an account which is auto generated during the installation of software. Administrator account is use to maintain and monitor the user using S-panel. S-panel {System Panel} has access to all user information (Except anonymous accounts), delete user account, clean user data, change user password, change user profile. Note: Administrator account is not use to create databases.



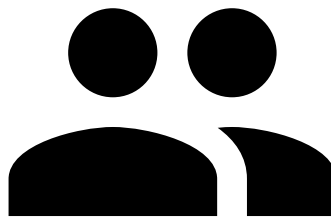
STANDARED ACCOUNT :

A standard account has access to U-panel {User Panel}, can create IOO databases.



GUEST ACCOUNT :

A guest account has access to U-panel {User Panel}, can create IO databases.



ANONYMOUS ACCOUNT :

An anonymous account has access to U-panel {User Panel}, can create 2 databases.



TYPES OF CONNECTION IN SQL LAB DBMS

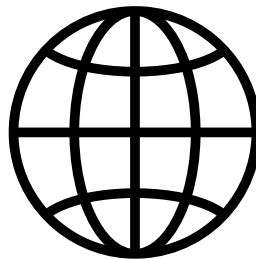
LOCAL SYSTEM DATABASE CONNECTIVITY :

Local system database connection is a type of connection in which software connect with local database file to read, update and delete data inside database file. File should be in file format of '*.sqlite', '*.sqlite3', '*.sdb', '*.db3', '*.s3db', '*.sl3', '*.db2', '*.s2db', '*.sqlite2', '*.sl2', '*.db'.



SQL LAB SYSTEM DATABASE CONNECTION :

SQL LAB system database connection is a type of connection in which software connect with software database file to read, update and delete data inside database file.



INFORMATION REQUIRED TO CREATE CONNECTION :

FOR LOCAL SYSTEM DB CONNECTION :

- (1) Connection name
- (2) User : Localhost
- (3) ID : Auto generated
- (4) Location of file
- (5) UCAL : Auto generated
- (6) Description

FOR SQL LAB SYSTEM DATABASE CONNECTION :

- (1) Connection name
- (2) Password
- (3) User
- (4) ID : Auto generated
- (5) Schema
- (6) UCAL : Auto generated
- (7) Description

DESCRIPTION OF ALL INFORMATION REQUIRED TO CREATE CONNECTION :

(1) Connection name :

Connection name is reliable name for connection,

(2) Password :

Password is the combination of characters, number and symbols required for future connectivity with particular connection.



(3) User :

User is the name of user which connection is to be create.

(4) ID :

ID is unique access key for a particular connection.

(5) Schema :

Schema is the name of database which is use in connection.

(6) UCAL :

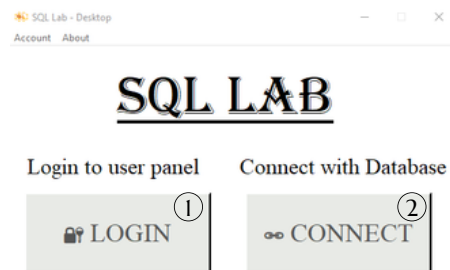
UCAL {Universal Connectivity Authentication Link} is the unique authentication link use to direct use of connection.

(7) Description :

Description is the short note about the connection. Generally description of a connection is purpose of connection.

HOW TO USE SQL LAB DBMS GRAPHICAL USER INTERFACE

DESKTOP WINDOW :



On desktop screen there are two options. First is login and second is connect.

(1) Login

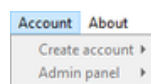
Login option open login panel use to login to U-panel or User Panel

(2) Connect

Connect option open connect with database window use to login to U-panel or User Panel

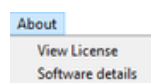
On top of desktop screen there are two menu options. First is "Account" and second is "About".

(1) Account



Account option has further two options, "Create account" use to create new accounts and "Admin panel" use to enter in admin panel.

(2) About



About option has further two options, "View License" use to see license and "Software details" use to see basic details of software.

CREATE USER ACCOUNT WINDOW :



Create user account window is use to create new user account. You have to just fill your user name, password, select user profile and press create account button. It takes you to User panel window.

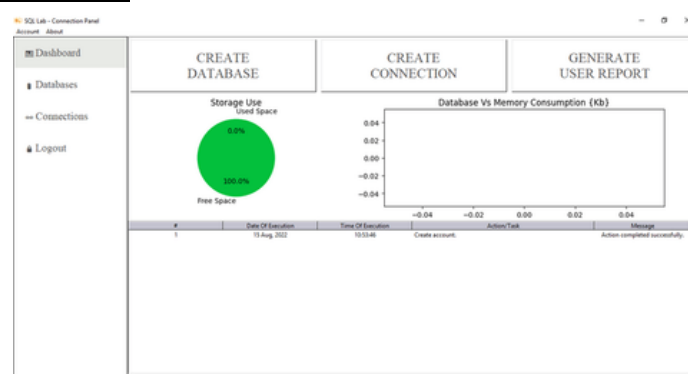
LOGIN TO PANEL WINDOW :

Login to panel window is use to login into user panel to access user details and manage user databases, connection etc. You have to just fill your user name, password, select user profile and press login button.

CONNECT WITH DB WINDOW :

Connect with database window has two options, First is connect with local database use to connect with database present in local system and second one is connect with system database use to connect with software user database.

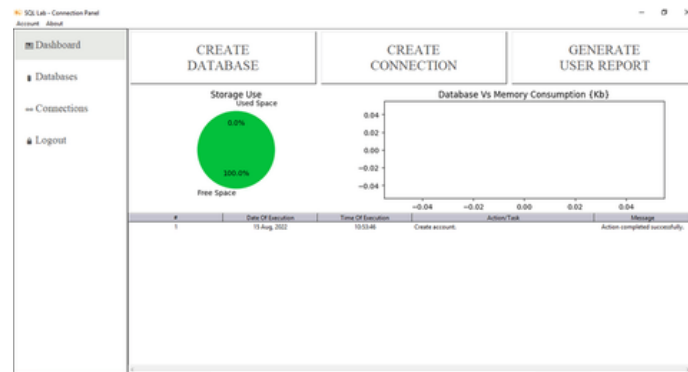
USER PANEL WINDOW :



User panel window is use to manage user database, connections, check storage use, etc. There are four options present on left hand side in options bar :

1. Dashboard
2. Database
3. Connection
4. Logout

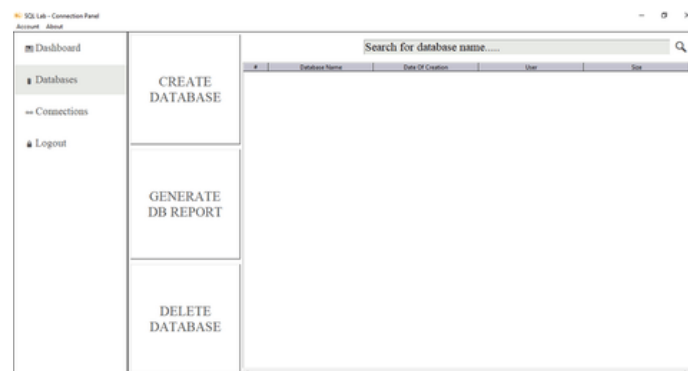
(1) Dashboard



Dashboard is the first option present on options bar. Dashboard window contains

1. The shortcut features on the top create database, create connection and generate user report.
2. In the middle there are two graph showing storage use and memory consumption of top 5 databases.
3. In the bottom there is activity monitor which show all actions done by user.

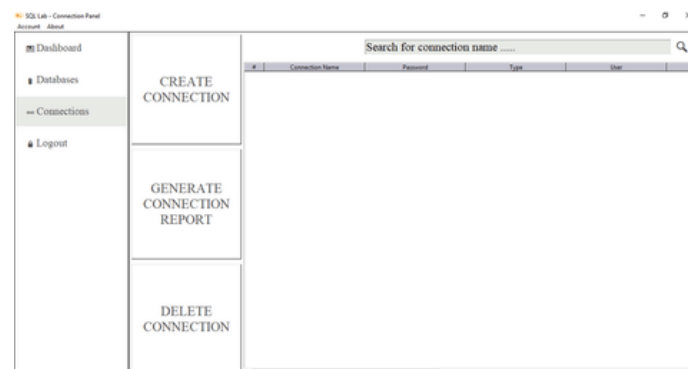
(2) Databases



Databases is the second option present on options bar. Databases window contains

1. The option bar in left which contains "Create Database", "Generate Database Report", "Delete Database".
2. In the right side there are all databases details list with search feature.

(3) Connections



Connections is the third option present on options bar. Connections window contains

1. The option bar in left which contains "Create Connections ", "Generate Connections Report", "Delete Connections ".



2. In the right side there are all connections details list with search feature.

(4) Logout

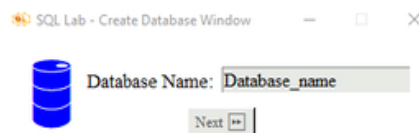
Connections is the forth option present on options bar use to logout user panel

HOW TO CREATE DATABASE :

Step 1. Open U-panel.

Step 2. Select Databases option.

Step 3. Select "Create Database" option then a new create database window pop up.



Step 4. Fill database name and press next option then you database created successfully.

Rules for naming database :

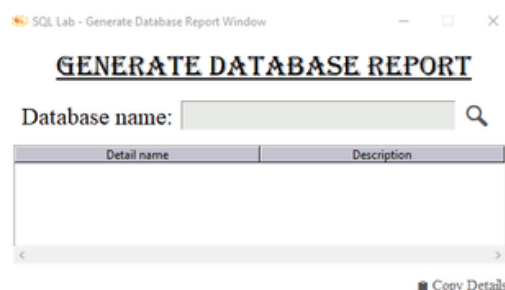
1. Name should be in 15 characters.
2. Name not contains any punctuation mark except underscore "_".
3. Name should not already use before in naming of database.

HOW TO GENERATE DATABASE REPORT :

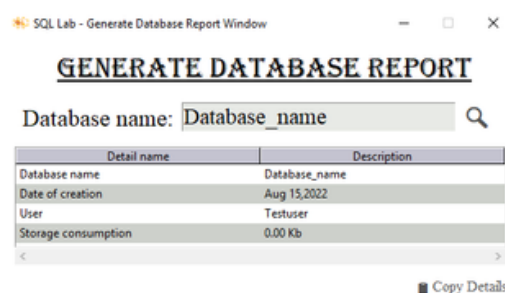
Step 1. Open U-panel.

Step 2. Select Databases option.

Step 3. Select "Generate Database Report" option then a new generate database report window pop up.



Step 4. Enter the name of database and then press search button.

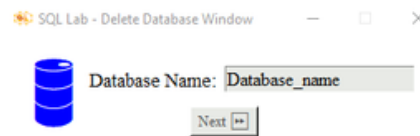


HOW TO DELETE DATABASE :

Step 1. Open U-panel.

Step 2. Select Databases option.

Step 3. Select "Delete Database" option then a new delete database window pop up.



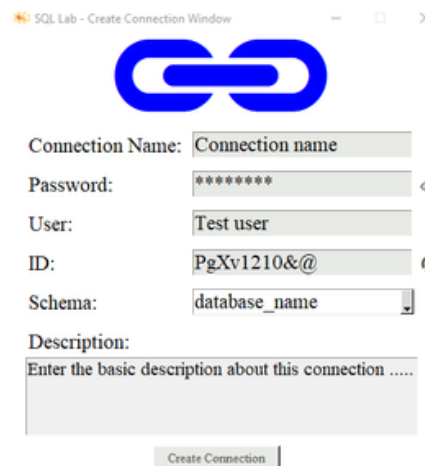
Step 4. Fill database name and press next option, then you database deleted successfully.

HOW TO CREATE CONNECTION :

Step 1. Open U-panel.

Step 2. Select Connections option.

Step 3. Select "Create Connection" option then a new create connection window pop up.



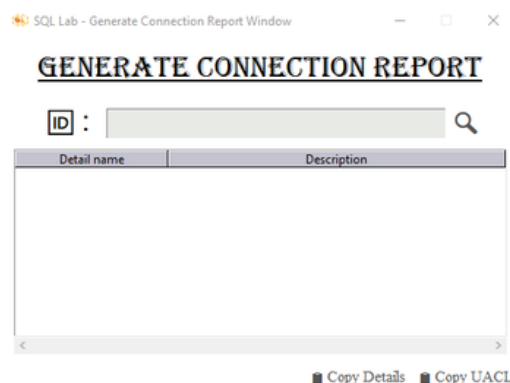
Step 4. Fill Connection details and press create connection option, then you connection created successfully.

HOW TO GENERATE CONNECTION REPORT :

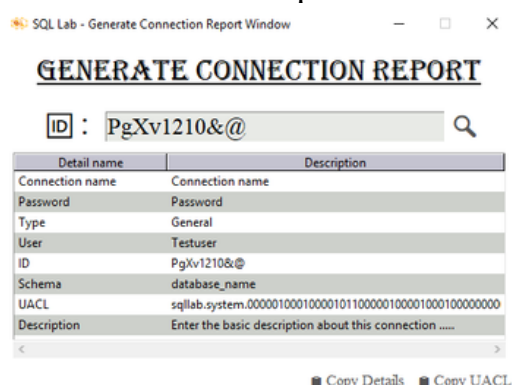
Step 1. Open U-panel.

Step 2. Select Connections option.

Step 3. Select "Generate Connection Report" option then a new generate connection report window pop up.



Step 4. Enter the ID of connection and then press search button.



You can copy details by clicking "Copy Details" button or copy UACL by clicking "Copy UACL" button to your clip board.

HOW TO DELETE DATABASE :

Step 1. Open U-panel.

Step 2. Select Connections option.

Step 3. Select "Delete Connections " option then a new delete connection window pop up.



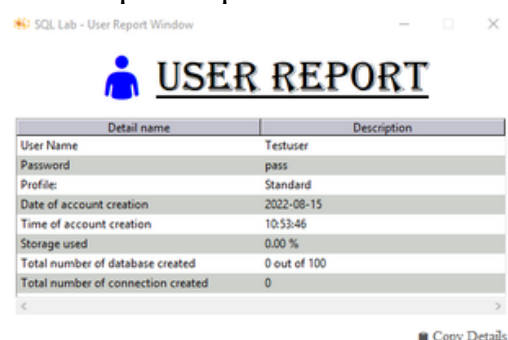
Step 4. Fill Connection ID and press next option, then you connection deleted successfully.

HOW TO GENERATE USER REPORT :

Step 1. Open U-panel.

Step 2. Select Dashboard option.

Step 3. Select "Generate User Report" option then a new user report window pop up.



You can copy details by clicking "Copy Details" button to your clip board.

HOW TO CONNECT SYSTEM DATABASE USING CONNECTION DETAILS :

Step 1. On desktop window click "Connect" button.

Step 2. Click on "Connect with system db button" then a new connect with system db window open.

Step 3. Fill all connection details and press connect. You connected to database successfully.

HOW TO CONNECT SYSTEM DATABASE USING UACL :

Step 1. On desktop window click "Connect" button.

Step 2. Click on "Connect with system db button" then a new connect with system db window open.

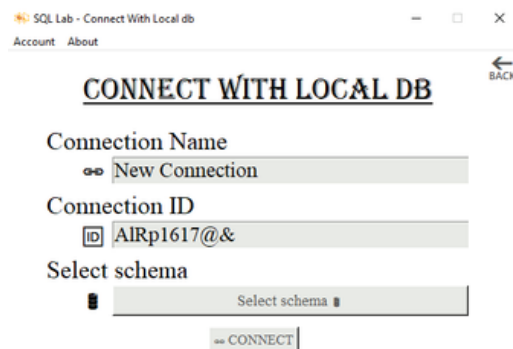
Step 3. Click on "Login with UACL" button at bottom right of window then a new connect with UACL window open..

Step 4. Fill the UACL and press search button then connect button comes up press that connect button then you connect with database.

HOW TO CONNECT LOACL DATABASE :

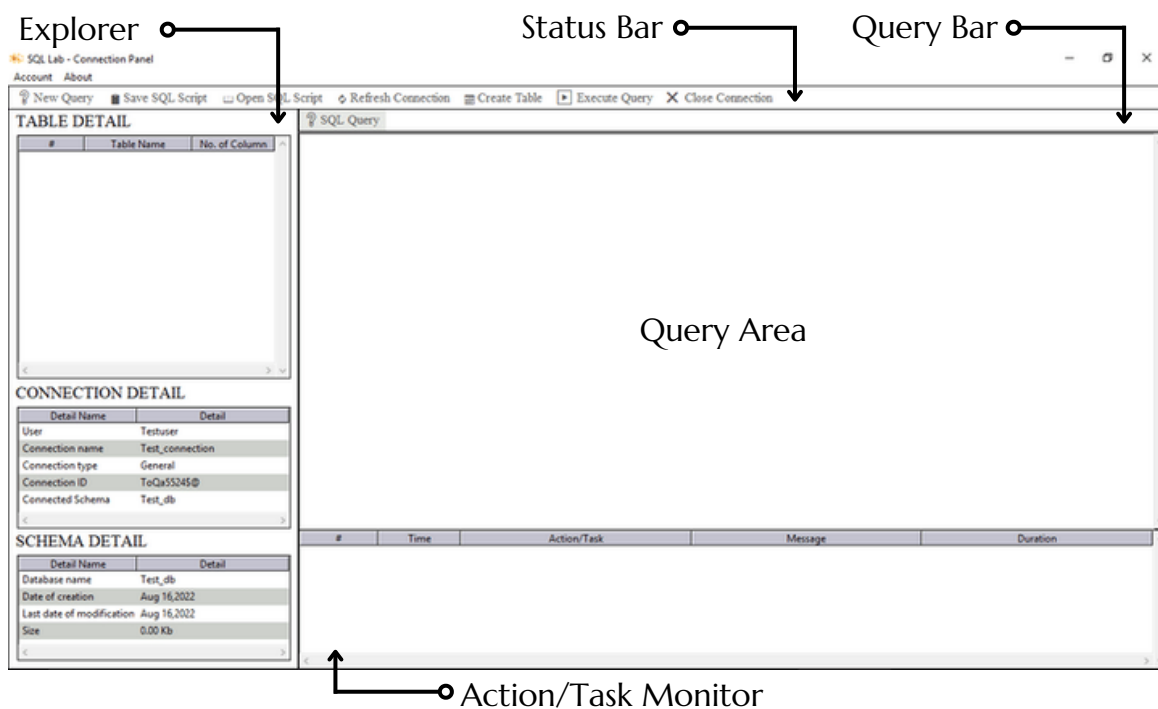
Step 1. On desktop window click "Connect" button.

Step 2. Click on "Connect with local db button" then a new connect with local db window open.



Step 3. Fill all connection details and press connect. You connected to database successfully.

CONNECTION PANEL WINDOW :



(1) Status Bar

Status Bar is present at the top of window. The status bar contains options given below :

(1) New Query

New Query button is use to generate new 'Query Area'.

(2) Save SQL Script

Save SQL Script button is use to save the query typed in query area to *.sql file.

(3) Open SQL Script

Open SQL Script button is use to open the *.sql file to the query area.

(4) Refresh Connection

Refresh Connection button is use to refresh connection. Use in condition when any table created or any error occurs in using connection.

(5) Create Table

Create Table button is use to create table graphically.

(6) Execute Query

Execute Query button is use to execute all queries present in query area if any query is not select. If any query is selected it execute it.

(7) Close Connection

Close Connection button is use to close connection.

(2) Query Bar

Query Bar is present bellow to status bar and above query area. Query Bar show all opened quires.

(3) Explorer

Explorer is present at left side of window. Explorer has three sections :

1. In top there is "Table details" sections which show all table details present in the database.
2. In middle there is "Connection Details" section which show basic connection details.
3. In bottom there is "Schema Details" section which show basic schema details.

(4) Query Area

Query Area is present at middle right side of window. Query area is use to write SQL quires.

(5) Action/Task Monitor

Action/Task Monitor is present at bottom right side of window. Action/Task Monitor display all the action or task done on database of the current session.

HOW TO CREATE TABLE GRAPHICALLY :

Step 1. Connect to database to open connection panel.

Step 2. Click on "Create table" button present on status bar then a new create table window pop up.

SQL Lab - Create Table

Table Name : table_name

Number of column : 5

Next ➡

Step 3. Fill table name and number of column you want to create in table then press next button, it opens a new window.

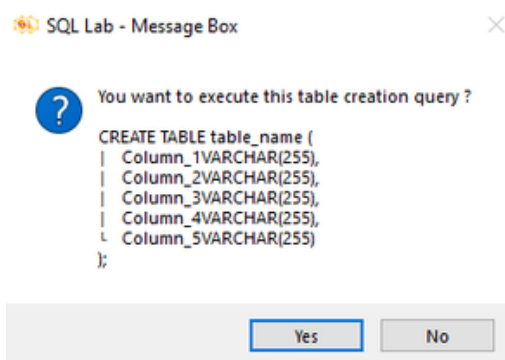
SQL Lab - Create Table

Column Details Form

Create Table

Column Name	Datatype	Default	PK	NN	UQ
Column_1	VARCHAR(255)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Column_2	VARCHAR(255)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Column_3	VARCHAR(255)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Column_4	VARCHAR(255)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Column_5	VARCHAR(255)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Step 4. Fill table details according to your requirements then press create table button present on the top right of window, It creates a dummy SQL query box asking about you want to create table or not.




Step 5. Press 'Yes' button then your table created successfully.

SHORTCUT KEYS :

Shortcut key	Description
Ctrl + n	Open new query area.
Ctrl + t	Create new table graphically.
Ctrl + r	Refresh connection.
Ctrl + q	Close connection.
F5	Execute query.

Step 1. Open CMD (Command prompt).
Step 2. Execute command given bellow :
" sql lab --uacl <UACL> "



The screenshot shows a terminal window titled "SQL Lab Shell". The text inside the terminal is as follows:

```
Welcome to the SQL Lab Shell.
Your SQL Lab connection id is ToQa55245@
Shell version: 1.0.0

Copyright (c) 2022, Swastik sharma.

Type 'quit;' to end connection.
Type 'clear;' to clear screen.
Commands end with ';'.
```

At the bottom of the terminal, the prompt "SQL Lab Shell\Standard\Testuser >>> " is visible, followed by a cursor.

Step 1. Open CMD (Command prompt).
Step 2. Execute command given bellow :
" sql lab --user <USER NAME> "

```
SQL Lab Shell
sql_lab_documentation >>>sql_lab --user "Test User"
Enter user profile (Standard/Guest/Anonymous) :
Enter password :
```

```
SQL Lab Shell
sql_lab_documentation >>>sql_lab --user "Test User"
Enter user profile (Standard/Guest/Anonymous) :
Enter password :
Use 'show databases' use see list of databases
Enter database name you want to use :show databases

+-----+
| Databases |
+-----+
| Test_db   |
+-----+
1 row in set.

Enter database name you want to use :test db
```

16



```
SQL Lab Shell

Welcome to the SQL Lab Shell.
Your SQL Lab connection id is 50
Shell version: 1.0.0

Copyright (c) 2022, Swastik sharma.

Type 'quit;' to end connection.
Type 'clear;' to clear screen.
Commands end with ';'

SQL-Lab-Shell\Standard\Testuser >>>
```

HOW TO SEE ABOUT MESSAGE :

Step 1. Open CMD (Command prompt).

Step 2. Execute command given bellow :

" sql_lab --about "

```
SQL LAB DOCUMENTATION
sql_lab_documentation >>>sql_lab --about

#####
#               #               #               #
#   #   #   #   #   #   #   #   #   #   #   #
#   #   #   #   #   #   #   #   #   #   #   #
#   #   #   #   #   #   #   #   #   #   #   #
#   #   #   #   #   #   #   #   #   #   #   #
#####

Software Name : SQL Lab
Type          : Application
Version       : 1.0.0
Licence       : BSD 3-Clause License
Developer     : Swastik Sharma

Copyright (c) 2022, Swastik Sharma
All rights reserved.
```

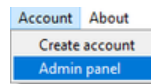
SPECIAL COMMANDS :

Shortcut key	Use
quit;	Use to close connection.
help;	Use to see help prompt.
clear;	Use to clear screen.

HOW USE SQL LAB DBMS ADMIN PANEL

HOW TO OPEN SQL LAB DBMS :

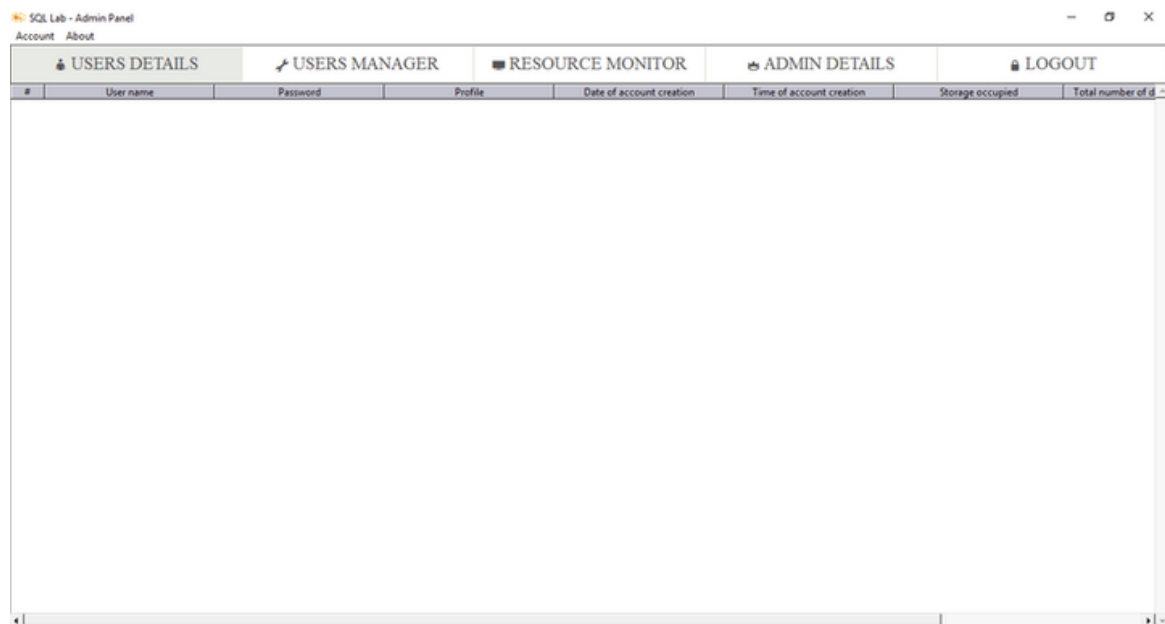
Step 1. On desktop window in "Account" select "Admin Panel" option, it opens a new admin panel login window.



Step 2. Fill admin password (Default: "root") and press login button then you successfully login to admin panel.



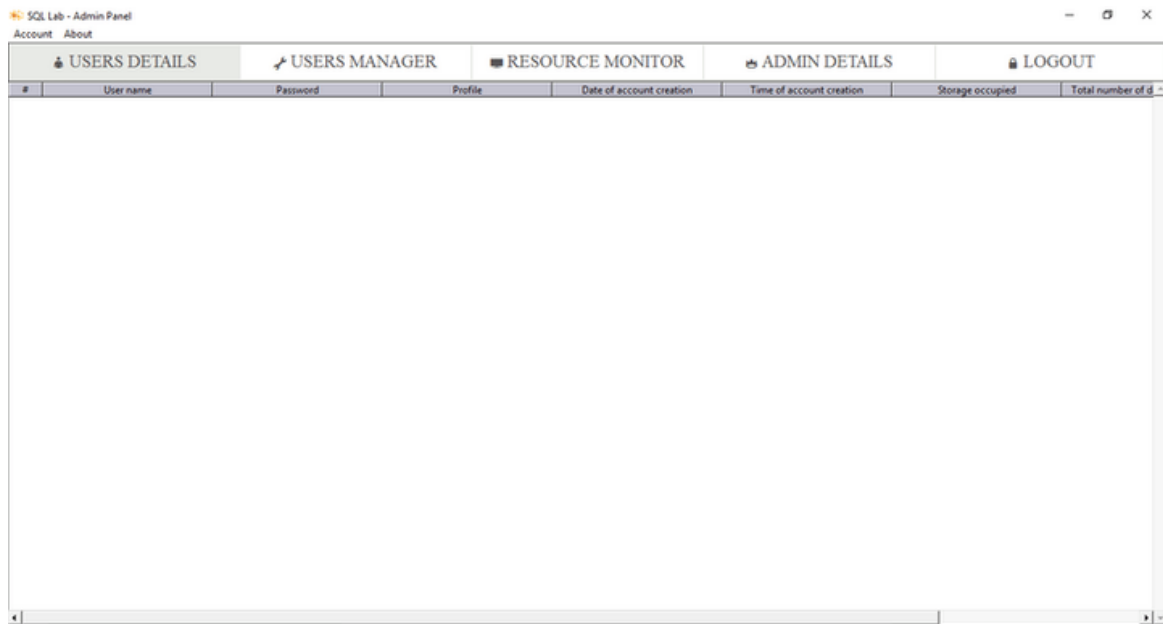
ADMIN PANEL WINDOW :



Admin panel window is use to manage guest and standard users. There are five options present at top of window in options bar :

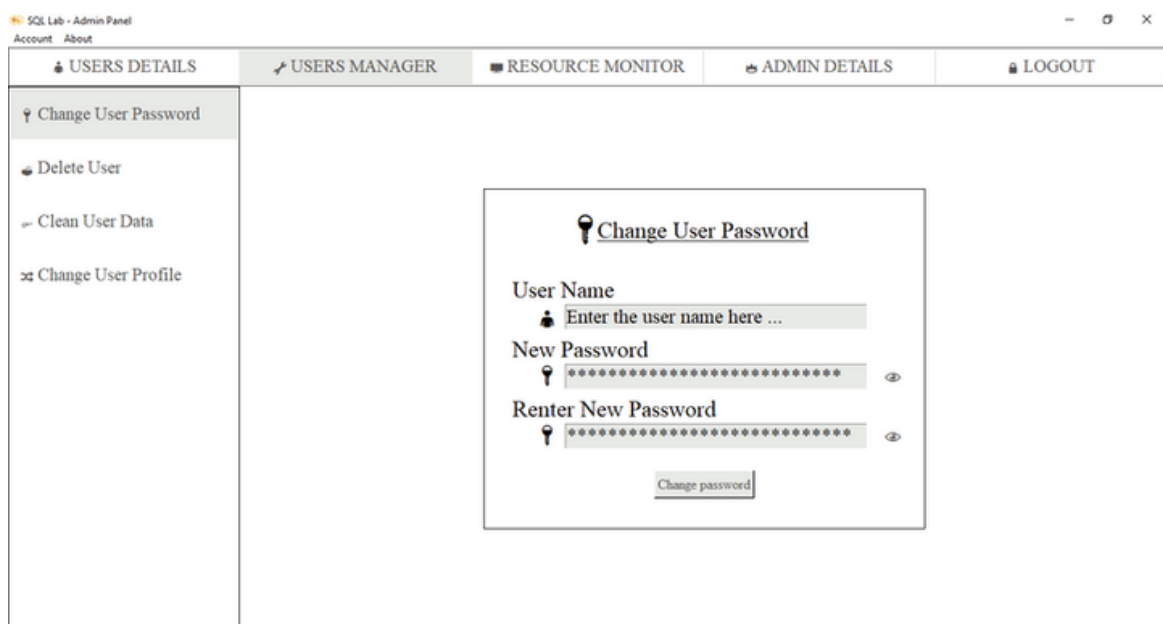
1. Users Details
2. Users Manager
3. Resource Monitor
4. Admin Details
5. Logout

(1) Users Details



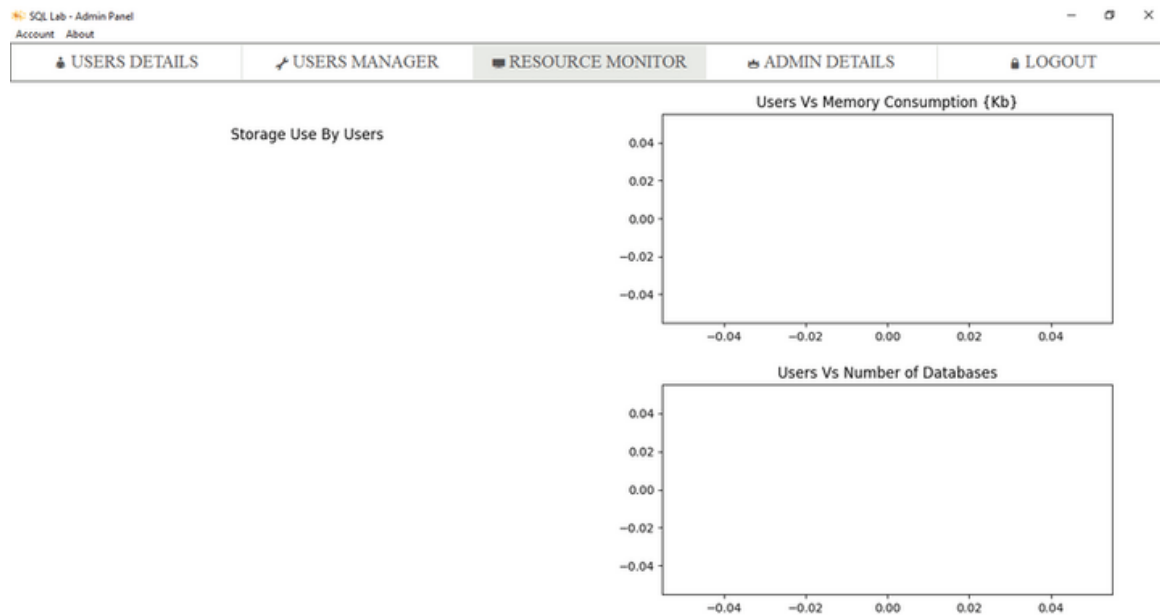
Users Details window contains all the details and credentials of standard and guest users in tabular form.

(2) Users Manager



Users Manager option is use to manage user. Users Manager window contains options like "Change User Password", "Delete User", "Clean User Data", "Change User Profile" to manage users.

(3) Resource Monitor



Resource Monitor option is use to see all details related to storage in graphical form. Resource Monitor window contains three graph :

1. Pie chart showing Storage use by users.
2. Line chart showing memory use by to five users.
3. Bar chart showing five users name who created maximum numbers of database.

(4) Admin Details

SQL Lab - Admin Details	
Detail name	Description
User name	Admin
Password	root
Profile	Administrator
Date of account creation	14 Aug, 2022
Time of account creation	20:24:20
<input type="text" value="Enter new password here ..."/> <input type="button" value="Change Password"/>	

Admin Details windows contain all admin credentials and in bottom there is feature of changing admin password.

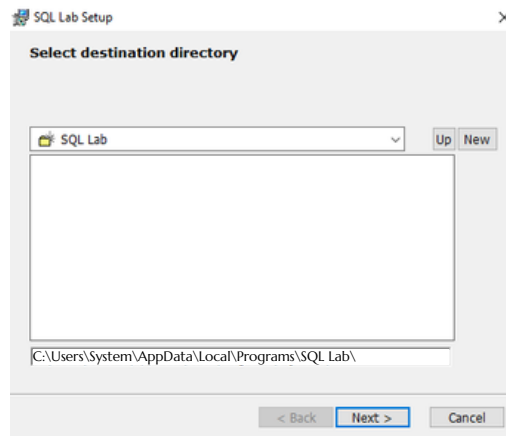
(5) Logout

Connections is the forth option present on options bar use to logout user panel

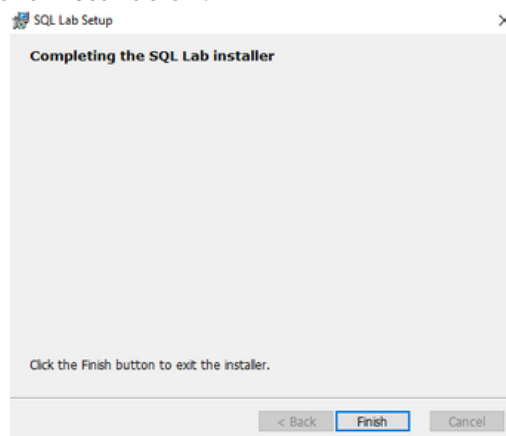
HOW TO INSTALL SQL LAB DBMS

Step 1. Download SQL Lab DBMS Installer.

Step 2. Run Installer.



Step 4. Press "Next" to start installation.



Step 4. When installation complete press "Finish" button to finish installation.

Step 5. Now go to directory where you install SQL Lab DBMS. Open bin folder copy the full path of path.

 `C:\Users\System\AppData\Local\Programs\SQL Lab\bin`

Step 6. Now you have to add copied path of bin folder to user environment variable.

How to add path to Environment Variable:

Step 1: Press "windows + r" key to open Run Command Window.

Step 2: Type command "system.cpl" and press ok. This open System properties panel.

Step 3: Click on Advance option at the top.

Step 4: Click on Environment Variables... option at the top.

Step 5: In user variable double click on PATH.

Step 6: Click on New option at the top right.

Step 7: Paste the path of bin folder in new entry box.

Step 8: Then press ok.

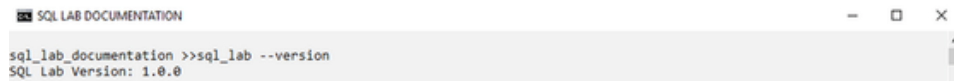
Step 9: Then again press ok.

Step 10: Then again press ok.



Now your path is added to environment variable.
Step 7. To verify installation open CMD and run command given bellow.
"sql_lab --version"

If the output is similar to given bellow then congratulation SQL Lab DBMS is installed successfully on your system



```
SQL LAB DOCUMENTATION
sql_lab_documentation >>sql_lab --version
SQL Lab Version: 1.0.0
```

