

SQL And Administration

PostgreSQL

PostgreSQL (/ˈpoʊstˌrʌskjuːl/ POHST-gres-kew-EL) also known as Postgres, is a free and open-source relational database management system (RDBMS) emphasizing - PostgreSQL (POHST-gres-kew-EL) also known as Postgres, is a free and open-source relational database management system (RDBMS) emphasizing extensibility and SQL compliance. PostgreSQL features transactions with atomicity, consistency, isolation, durability (ACID) properties, automatically updatable views, materialized views, triggers, foreign keys, and stored procedures.

It is supported on all major operating systems, including Windows, Linux, macOS, FreeBSD, and OpenBSD, and handles a range of workloads from single machines to data warehouses, data lakes, or web services with many concurrent users.

The PostgreSQL Global Development Group focuses only on developing a database engine and closely related components.

This core is, technically, what comprises PostgreSQL itself, but there is an extensive developer community and ecosystem that provides other important feature sets that might, traditionally, be provided by a proprietary software vendor. These include special-purpose database engine features, like those needed to support a geospatial or temporal database or features which emulate other database products.

Also available from third parties are a wide variety of user and machine interface features, such as graphical user interfaces or load balancing and high availability toolsets.

The large third-party PostgreSQL support network of people, companies, products, and projects, even though not part of The PostgreSQL Development Group, are essential to the PostgreSQL database engine's adoption and use and make up the PostgreSQL ecosystem writ large.

PostgreSQL was originally named POSTGRES, referring to its origins as a successor to the Ingres database developed at the University of California, Berkeley. In 1996, the project was renamed PostgreSQL to reflect its support for SQL. After a review in 2007, the development team decided to keep the name PostgreSQL and the alias Postgres.

MySQL Workbench

MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single - MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single integrated development environment for the MySQL database system. It is the successor to DBDesigner 4 from fabFORCE.net, and replaces the previous package of software, MySQL GUI Tools Bundle.

SQL Server Management Studio

Microsoft SQL Server Management Studio (SSMS) is a software application developed by Microsoft that is used for configuring, managing, and administering - Microsoft SQL Server Management Studio (SSMS) is a

software application developed by Microsoft that is used for configuring, managing, and administering all components within Microsoft SQL Server. First launched with Microsoft SQL Server 2005, it is the successor to the Enterprise Manager in SQL 2000 or before. The tool includes both script editors and graphical tools which work with objects and features of the server.

A central feature of SSMS is the Object Explorer, which allows the user to browse, select, and act upon any of the objects within the server. It also shipped a separate Express edition that could be freely downloaded; however recent versions of SSMS are fully capable of connecting to and manage any SQL Server Express instance. Microsoft also incorporated backwards compatibility for older versions of SQL Server thus allowing a newer version of SSMS to connect to older versions of SQL Server instances. It also comes with Microsoft SQL Server Express 2012, or users can download it separately.

Starting from version 11, the application was based on the Visual Studio 2010 shell, using WPF for the user interface. Versions 18 and after are based on the Visual Studio 2017 Isolated Shell.

In June 2015, Microsoft announced their intention to release future versions of SSMS independently of SQL Server database engine releases.

Since version 21 SSMS is based on Visual Studio 2022 and is installed using the Visual Studio Installer.

SQL injection

In computing, SQL injection is a code injection technique used to attack data-driven applications, in which malicious SQL statements are inserted into - In computing, SQL injection is a code injection technique used to attack data-driven applications, in which malicious SQL statements are inserted into an entry field for execution (e.g. to dump the database contents to the attacker). SQL injection must exploit a security vulnerability in an application's software, for example, when user input is either incorrectly filtered for string literal escape characters embedded in SQL statements or user input is not strongly typed and unexpectedly executed. SQL injection is mostly known as an attack vector for websites but can be used to attack any type of SQL database.

SQL injection attacks allow attackers to spoof identity, tamper with existing data, cause repudiation issues such as voiding transactions or changing balances, allow the complete disclosure of all data on the system, destroy the data or make it otherwise unavailable, and become administrators of the database server. Document-oriented NoSQL databases can also be affected by this security vulnerability.

SQL injection remains a widely recognized security risk due to its potential to compromise sensitive data. The Open Web Application Security Project (OWASP) describes it as a vulnerability that occurs when applications construct database queries using unvalidated user input. Exploiting this flaw, attackers can execute unintended database commands, potentially accessing, modifying, or deleting data. OWASP outlines several mitigation strategies, including prepared statements, stored procedures, and input validation, to prevent user input from being misinterpreted as executable SQL code.

MySQL

combination of "My", the name of co-founder Michael Widenius's daughter My, and "SQL", the acronym for Structured Query Language. A relational database organizes - MySQL () is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius's daughter My, and "SQL", the acronym for Structured Query

Language. A relational database organizes data into one or more data tables in which data may be related to each other; these relations help structure the data. SQL is a language that programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. MySQL was owned and sponsored by the Swedish company MySQL AB, which was bought by Sun Microsystems (now Oracle Corporation). In 2010, when Oracle acquired Sun, Widenius forked the open-source MySQL project to create MariaDB.

MySQL has stand-alone clients that allow users to interact directly with a MySQL database using SQL, but more often, MySQL is used with other programs to implement applications that need relational database capability. MySQL is a component of the LAMP web application software stack (and others), which is an acronym for Linux, Apache, MySQL, Perl/PHP/Python. MySQL is used by many database-driven web applications, including Drupal, Joomla, phpBB, and WordPress. MySQL is also used by many popular websites, including Facebook, Flickr, MediaWiki, Twitter, and YouTube.

PhpMyAdmin

phpMyAdmin is a free and open source administration tool for MySQL and MariaDB. As a portable web application written primarily in PHP, it has become - phpMyAdmin is a free and open source administration tool for MySQL and MariaDB. As a portable web application written primarily in PHP, it has become one of the most popular MySQL administration tools, especially for web hosting services.

DBeaver

DBeaver is a SQL client software application and a database administration tool. For relational databases it uses the JDBC application programming interface - DBeaver is a SQL client software application and a database administration tool. For relational databases it uses the JDBC application programming interface (API) to interact with databases via a JDBC driver. For other databases (NoSQL) it uses proprietary database drivers. It provides an editor that supports code completion and syntax highlighting. It provides a plug-in architecture (based on the Eclipse plugins architecture) that allows users to modify much of the application's behavior to provide database-specific functionality or features that are database-independent. It is written in Java and based on the Eclipse platform.

The community edition (CE) of DBeaver is a free and open source software that is distributed under the Apache License. A closed-source enterprise edition of DBeaver is distributed under a commercial license.

HeidiSQL

HeidiSQL is a free and open-source administration tool for MariaDB, MySQL, as well as Microsoft SQL Server, PostgreSQL and SQLite. Its codebase was originally - HeidiSQL is a free and open-source administration tool for MariaDB, MySQL, as well as Microsoft SQL Server, PostgreSQL and SQLite. Its codebase was originally taken from Ansgar Becker's own MySQL-Front 2.5 software. After selling the MySQL-Front branding to an unrelated party, Becker chose "HeidiSQL" as a replacement. The name was suggested by a friend as a tribute to Heidi Klum, and was further reinforced by Becker's own nostalgia for Heidi, Girl of the Alps.

SQL Plus

SQL Plus is the most basic Oracle Database utility, with a basic command-line interface, commonly used by users, administrators, and programmers. SQL - SQL Plus is the most basic Oracle Database utility, with a basic command-line interface, commonly used by users, administrators, and programmers.

List of relational database management systems

PRTV QBE IBM SQL/DS Sybase SQL Server OpenOffice.org Base HSQLDB StarBase Adabas D Alphora Dataphor (a proprietary virtual, federated DBMS and RAD MS .Net - This is a list of relational database management systems.

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