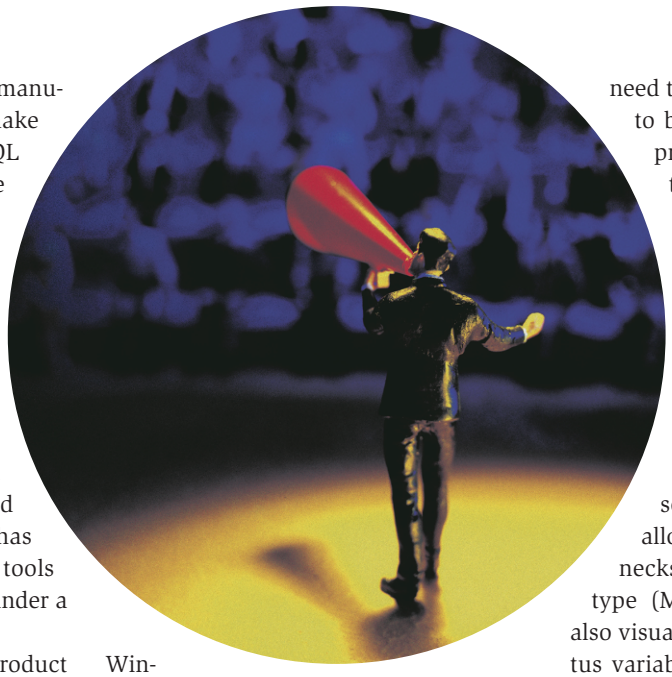
New database front-end: MySQL Administrator

SQL Tamer for all

MySQL AB recently released an Alpha version of MySQL Administrator, a GUI-based database front-end, for configuring and monitoring MySQL servers. More tools are planned, for database modeling, and building database clusters.

BY SANDRO ZIC

MySQL AB, the database manufacturer looks set to make life easier for MySQL database administrators who have not been able to come to terms with the command line interface by providing a set of new GUI-based tools. A complete collection of graphical tools should become available later in the year. The tools will facilitate tasks such as the installation, configuration, and monitoring of a MySQL clusters for replication and load balancing. Just like one has come to expect from MySQL, the tools will be available as GPL versions under a commercial license.



MySQL actually launched the product line in January this year, when the MySQL Administrator [1] was demonstrated at the Linux World Expo in New York. Linux Magazine took a look at the brand new software, and talked to main developer, Mike Zinner, about admin tools that MySQL has in the pipeline.

MySQL Administrator (MA) is a GUI-based administration console for MySQL database servers version 4 or later. The program can open an unencrypted or SSL-encrypted connection to the server. The developers have not completed the work on the SSH tunnel at time of writing. The feature-rich program includes functions for user management on the MySQL server, health status monitor, backup and recovery of data, and viewing server logs. Versions for Windows and Linux are available at present, and will be joined by a MacOS X version later in the year.

No Java Ballast

For this article, we tested the Linux version on Suse 9.0 with KDE 3.1.4, and the Windows variant on Windows XP Professional. As our test version was a pre-alpha release straight from the developers, we expected some teething trouble. In fact the software proved to be quite stable both on Windows and Linux. The installation went off without a hitch.

The software reacts very quickly to input on both systems. In contrast to some Java GUIs, which react extremely slowly, it uses C libraries. The Windows user interface was developed in Delphi VCL; Gtkmm [2] was used for the Linux development.

MySQL's partnership with SAP might lead one to expect that MySQL Administrator would be based on the SAPDB Database Manager GUI [3], but Mike Zinner ensured us that it was a "completely new development". When asked to compare the MySQL Administrator with the Enterprise Manager for MSSQL, Mike explained that "MA only provides a subset of the features that MSSQL Enterprise Manager has at present. We will need to wait for the MySQL GUIs due to be completed later this year to provide the full range of functions."

Health Monitoring

MA's health monitoring facilities are a major highlight. Dynamic charts display critical values on the fly; these include the memory or hard disk usage, and the number of connections to the database server (see Figure 1). This allows admins to recognize bottlenecks independently of the table type (MyISAM or InnoDB). MA can also visualize statistics for individual status variables, such as "bytes_sent" and "bytes_received", which indicate the network load.

Experienced database admins can define forms to display a combination of status variables, thus creating tailor-made health status displays. Using a simple formula, admins can create a graph to display the number of bytes per second transmitted across the network. To do so, they simply navigate the tree view to the "Bytes_ sent" status variable, right-click the value and type the following formula in the window that appears: "^Bytes_sent".

The "^" character stands for a delta and means "per second". This tells MA to display the graph with dynamic values. More complex formulae can be generated in the same way. For example, you might like to display the cache hits as a percentage of the total cache requests per second:

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(^[Qcache_hits]/(^[Qcache_hits]+^[QCache_inserts]+^[QCache_not_cached]))*100
```

This opens up a whole new range of monitoring facilities to professional database administrators.

Simple User Management

MA's integrated user management is far more convenient than the equivalent features in similar programs. Clicking on "User Administration" displays a complete user list in the left sidebar (see Figure 2). You can then click on a user to display the names of the hosts the user is allowed to access. The admin can then select a host, and store the user's credentials, including password and contact data, a description, or even a photo.

MySQL provides access controls by server, database, table or column. Special MA pages allow admins to manage each of these control groups. The pages are available via tabs. Each page has a list of available privileges on the right. The MA user can select the required privileges and use drag & drop to assign them to a user. It is also possible to restrict the hosts from which a user can dial up the database server. To do so, right-click the user name and add a host. There is also a page for each user where admins can define resources such as the maximum number of connections per hour.

Useful Details

In addition to straightforward administration tasks, MA also provides backup management facilities. To create a backup, the admin first creates a number of profiles, navigating a tree and checking checkboxes, to tell MA what to store in the backup file. This allows for a granular selection of backup sources from complete databases, through tables, to individual columns. A feature that will allow admins to define recurring backup jobs with MA is still under development.

The attention to detail makes MA a useful tool in practical applications. Take the feature for sorting entries from the error or slow query logs in a separate window, for example. This allows the administrator to quickly filter critical entries, and speeds up logfile analysis. Simply click a logged event and MA will automatically scroll to the required context in the logfile.

Explanations of the configuration options for the global server configuration file ("my.cnf") within MA remove the need to RTFM. In addition to the checkbox for enabling and disabling debug mode, there is also a note that the database will respond more slowly in this mode, as activities will be logged. These are useful tips for newbies using the system.

The component for monitoring replicated databases was unfortunately still under development in the version we tested. However, we were informed that it will simply provide an overview of the cluster; a separate application, called Replication Manager, will be available for cluster management some time in the future. Of course, Mike Zinner did not want to let the cat out the bag by telling us the kind of administration the Replication Manager will support. The name

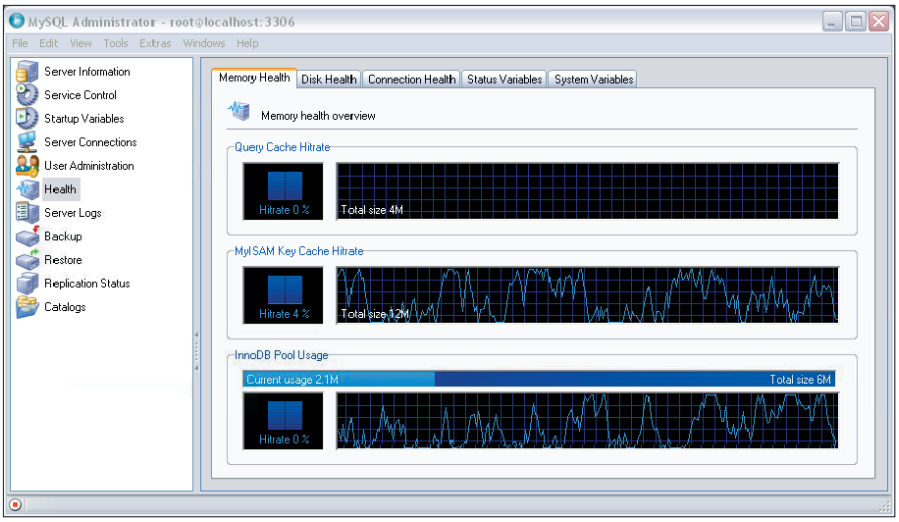

Figure 1: A dynamic health status display for numerous critical values is one of MA's highlights. This shows an overview of the main memory status on Windows.

itself is an internal codename. However, Mike did reveal that it would make setting up a replication scenario childsplay, adding "We will be demonstrating something really neat at the MySQL User Conference in April."

More Tools Planned

Workbench is another internal codename. The first stable version will be similar to the DB Designer 4 [4]. Admins will be able to use the Workbench to create and modify database models in a Wysiwyg interface, displaying foreign key constraints, for example. Experienced users will be curious as to whether the Workbench will have a debugger for stored procedures, like the one due to be implemented in version 5.0 of the MySQL database.

Mike Zinner told us "Workbench and the Query Analyzer will support stored procedures management. MySQL Administrator will simply provide an overview, like the replication overview, allowing admins to open the the Workbench or the Query Analyzer for a specific stored procedure." The Query Analyzer supports data queries and manipulation of the results, plus the analysis of individual queries and stored procedures based on "EXPLAIN" statements. More details will be revealed at the MySQL conference.

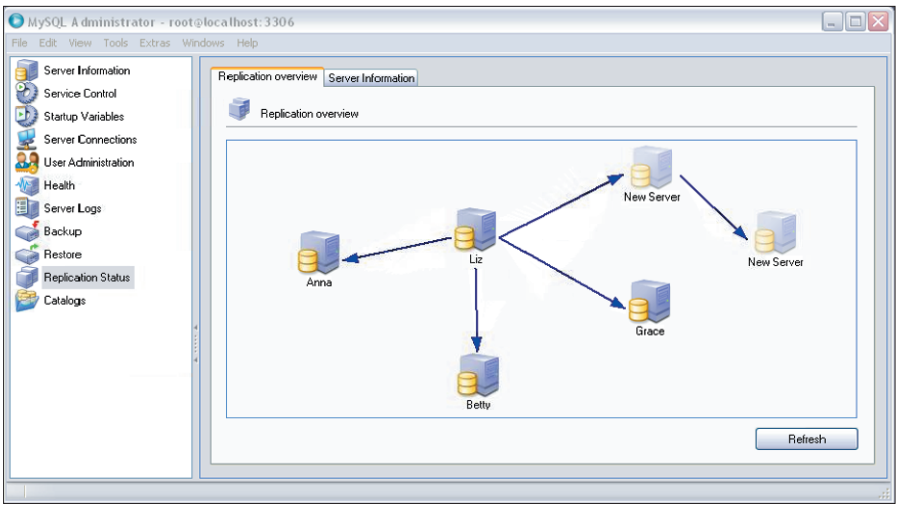

Figure 3: Overview of a MySQL cluster. Nodes can be added and removed by pointing & clicking.

MySQL administrator is just the start of a whole new family of products that will take the headaches out of administering the free database. The product family is subdivided into two lines: the administrative tools, comprising only MA at this time of writing, and developer tools like the Workbench, the Query Analyzer or the Replication Manager.

A Complete Tool Chain

MySQL AB aims to produce stable versions of these applications by the end of 2004. The release cycle will include Alpha, Beta and Gamma versions that lead to the stable version, in line with the approach for the database server itself. In the long term, MySQL AB intends to replace the MySQL Control Center [5]. Even the most ardent supporters of the shell probably can't wait to get their hands on the colorful MySQL Administrator, especially in the light of the useful health status monitoring facilities it provides. Good news for the die-hards: you can pop up a shell from within MA and zap around between the various consoles.

MA is an interesting proposition for newcomers to database administration and hobby administrators. Its wide range of settings support highly granular configuration of the MySQL server. And the user management facilities save a lot of typing. Newcomers can also refer to the "Best practices" [6] section of the MySQL homepage for advice on tuning their databases and effective database management. The experts will probably benefit more from tools such as the new Replication Manager. ■

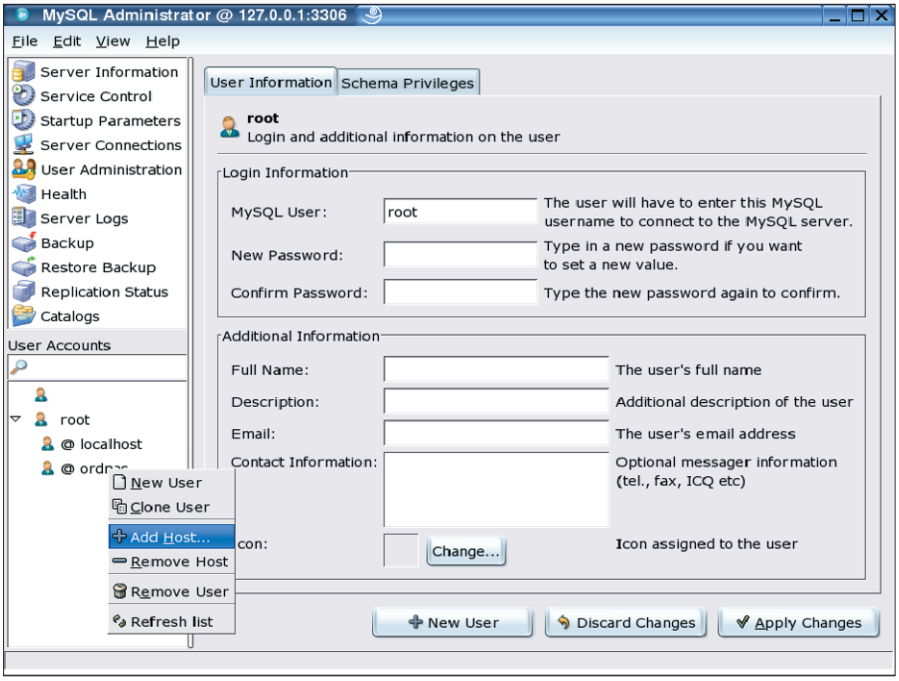

Figure 2: Convenient user management. The administrator can designate users who will have access to the server. The screenshot shows the Linux version of MA.

INFO

[1] MySQL Administrator: *http://www.mysql.com/products/administrator/*

[2] Gtkmm: *http://www.gtkmm.org*

[3] SAPDB Database Manager GUI: *http://www.sapdb.org/7.4/sap_db_dbm.htm*

[4] DB Designer 4: *http://fabforce.net/dbdesigner4/*

[5] MySQL Control Center: *http://www.mysql.com/products/mysqlcc/*

[6] MySQL Administrator "Best Practices": *http://www.mysql.com/articles/mysql-administrator-best-practices.html*