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Installation

This chapter describes how to download and install MySQL. MySQL is available for wide variety of target operating systems. In this chapter, we provide an overview of how to install MySQL binary and source distributions for Unix (Solaris and Linux). Instructions for installation onto Win32 systems are also provided.

Getting prepared

Before you begin installing MySQL, you must answer a couple of questions.

1. Which version do I want to install?

This is typically a decision between the latest stable release and the latest development release. In general, we recommended that you go with the latest stable release unless you need specific features in a development release that are not available in the stable release.

Presently this comes down to a choice between MySQL 3.23 and MySQL-Max 3.23. MySQL-Max is a beta release of the MySQL software with support for transactions (via BerkeleyDB and InnoDB tables). The standard MySQL binary does not include support for these types of tables.

2. Do I want to install a binary or source distribution?

In general, we recommend that you install a binary distribution if one is available for your platform. In most cases a binary distribution will be easier to install than a source distribution.

We recommend that whenever possible you install from a binary distribution. In general this is the fastest and most reliable way to get MySQL up and running. The MySQL team and contributors have to great lengths to ensure that the binary distributions on their site

are built with the best possible options. However, you may encounter cases where you need to build your MySQL distribution from scratch. For example,

There are a few reasons that you would need to install a source distribution:

- You are not able to locate a binary distribution for your target system
- You want to configure MySQL with some combination of options that is not available in any of the binary distributions
- You want to optimize your installation of MySQL by modifying compiler options or by using a different compiler
- You need to apply a bug fix patch

Downloading the Software

With the answers to those questions in mind, you can complete the first step in installing MySQL. That is to download the distribution. The best place to obtain MySQL source or binary distributions is from the MySQL downloads page, <http://www.mysql.com/downloads> or from one of the many mirror sites which can be found at <http://www.mysql.com/downloads/mirrors.html>.

Unix Installation

MySQL is available on a wide variety of UNIX platforms. Here go over the steps necessary to install binary and source distributions on Solaris and Linux. These can also be used as a general guide to installation on other operating systems, which should be very similar to our examples.

Installing a binary (tarball) distribution

In order to install a binary distribution, you will need the tar utility and the GNU gunzip utility.

Solaris tar is known to have problems with some of the long filenames in the MySQL binary distribution. In order to successfully unpack the binary distribution on a Solaris system, you may need to obtain GNU gtar. A binary distribution version of this is available at www.mysql.com/downloads/os-solaris.html.

The binary distributions are all named using the following convention: `mysql-<VERSION>-<OS>.tar.gz`. `<VERSION>` is a number representing the version of the software contained in the distribution. `<OS>` is the operating system the binary distribution is built for. Binary distributions named `mysql-max-<VERSION>-`

<OS>.tar.gz contain a version of MySQL compiled with support for transaction –safe tables.

Assume for this example, that we have chosen to install MySQL 3.23.40 on an Sun Solaris server. Also assume the distribution file mysql-3.23.40-sun-solaris2.7-sparc.tar.gz has been downloaded into the /tmp directory.

We recommend that you create a user and group for MySQL administration. This user should be used to run the mysql server, and to perform administrative tasks. It is possible to run the server as root, but is it not recommended.

The first step is to create a user that will be used to run the MySQL server. On Solaris and Linux, this can be done with the useradd and groupadd utilities. In our example, we create a user called “mysql”. In practice, you can choose any username and/or that you like.

```
$ groupadd mysql
$ useradd -g mysql mysql
```

Select the desired location for the mysql software and change your current directory to that location. In this example, we install into /usr/local.

/usr/local is the standard install location that is assumed by the MySQL software. You can, of course, install it wherever you like. If you choose to install in a location other than /usr/local, you will need to modify some of scripts provided by MySQL. See the MySQL installation instructions at <http://www.mysql.org/documentation> for more details.

```
$ cd /usr/local
```

Now, unpack the software.

```
$ gunzip -c /tmp/mysql-3.23.40-sun-solaris2.7-sparc.tar.gz | tar -xf -
```

On a Solaris server, you may need to use GNU tar:

```
$ gunzip -c /tmp/mysql-3.23.40-sun-solaris2.7-
sparc.tar.gz | gtar -xf -
```

You should now see one directory.

```
$ ls -l
total 1
drwxr-xr-x  28 user      users          1024 Jul 18 14:29 mysql-3.23.40-sun-
solaris2.7-sparc/
```

The next step is to create a symbolic link so that the installation can be referred to as /usr/local/mysql.

```
$ ln -s mysql-3.23.40-sun-solaris2.7-sparc mysql
$ ls -l
.
.
lrwxrwxrwx   1 user      users           31 Jul 26 18:32 mysql -> mysql-3.23.40-sun-
solaris2.7-sparc/
```

```
| drwxr-xr-x 12 user      users      1024 Jul 18 17:07 mysql-3.23.40-sun-
| solaris2.7-sparc/
| .
```

Now, lets go into the mysql directory and have a look around.

```
| $ cd mysql
| $ ls -l
| total 4476
| -rw-r--r-- 1 user      users      19076 Jul 18 14:21 COPYING
| -rw-r--r-- 1 user      users      28011 Jul 18 14:21 COPYING.LIB
| -rw-r--r-- 1 user      users     122213 Jul 18 14:19 ChangeLog
| -rw-r--r-- 1 user      users     14842 Jul 18 14:21 INSTALL-BINARY
| -rw-r--r-- 1 user      users      1976 Jul 18 14:19 README
| drwxr-xr-x 2 user      users      1024 Jul 18 17:07 bin/
| -rw-r-xr-x 1 user      users        773 Jul 18 17:07 configure*
| drwxr-x--- 4 user      users      1024 Jul 26 18:27 data/
| drwxr-xr-x 2 user      users      1024 Jul 18 17:07 include/
| drwxr-xr-x 2 user      users      1024 Jul 18 17:07 lib/
| -rw-r--r-- 1 user      users    2321255 Jul 18 14:21 manual.html
| -rw-r--r-- 1 user      users    1956858 Jul 18 14:21 manual.txt
| -rw-r--r-- 1 user      users     80487 Jul 18 14:21 manual_toc.html
| drwxr-xr-x 6 user      users      1024 Jul 18 17:07 mysql-test/
| drwxr-xr-x 2 user      users      1024 Jul 18 17:07 scripts/
| drwxr-xr-x 3 user      users      1024 Jul 18 17:07 share/
| drwxr-xr-x 7 user      users      1024 Jul 18 17:07 sql-bench/
| drwxr-xr-x 2 user      users      1024 Jul 18 17:07 support-files/
| drwxr-xr-x 2 user      users      1024 Jul 18 17:07 tests/
```

The software is now installed. We have a few set-up tasks left to do. Run scripts/mysql_install_db to create the MySQL grant tables:

```
| $ scripts/mysql_install_db
| Preparing db table
| Preparing host table
| Preparing user table
| Preparing func table
| Preparing tables_priv table
| Preparing columns_priv table
| Installing all prepared tables
| 010726 19:40:05 ./bin/mysqld: Shutdown Complete
| .
| .
| .
```

Set up the ownership of the binaries so they are owned by root and in the MySQL administrator group that you created earlier (in our case, mysql).

```
| $ chown -R root /usr/local/mysql
| $ chgrp -R mysql /usr/local/mysql
```

Set the ownership of the data directories to the MySQL administrative user you created earlier (for this example, mysql).

```
| $ chown -R mysql /usr/local/mysql/data
```

MySQL is now installed and ready to go. To start the server run safe_mysqld:

```
| $ bin/safe_mysqld -user=mysql &
```

If you would like to have MySQL server start automatically at server boot, you can copy `support-files/mysql.server` script to the appropriate location on your system. See the script for more details.

Installing a binary RPM (RedHat Package Manager) Distribution

The recommended way to install MySQL on an Intel Linux system is via RPM (RedHat Package Manager). Several RPM files are available for download.

| Filename | Description |
|---------------------------------|---|
| MySQL-<VERSION>.i386.rpm | The MySQL server software |
| MySQL-client-<VERSION>.i386.rpm | The MySQL client software |
| MySQL-bench-<VERSION>.i386.rpm | MySQL tests and benchmarks. This requires the perl and msqldb-mysql-modules RPMs. |
| MySQL-devel-<VERSION>.i386.rpm | Libraries and includes files for compiling other MySQL clients. |
| MySQL-shared-<VERSION>.i386.rpm | MySQL client shared libraries. |

The procedure for installing a RPM distribution is simple. First, obtain the RPM(s) you wish to install. Second, use the rpm utility to install.

Assume for this example that we will install all of the RPM packages for version 3.23.40 on an Intel Linux system. Also assume RPM files `MySQL-3.23.40-1.i386.rpm`, `MySQL-client-3.23.40-1.i386.rpm`, `MySQL-devel-3.23.40-1.i386.rpm`, `MySQL-bench-3.23.40-1.i386.rpm` and `MySQL-shared-3.23.40-1.i386.rpm` have been downloaded to `/tmp`.

Installing them is as simple as executing this sequence of commands:

```
$ rpm -i /tmp/MySQL-3.23.40-1.i386.rpm
$ rpm -i /tmp/MySQL-client-3.23.40-1.i386.rpm
$ rpm -i /tmp/MySQL-devel-3.23.40-1.i386.rpm
$ rpm -i /tmp/MySQL-bench-3.23.40-1.i386.rpm
$ rpm -i /tmp/MySQL-shared-3.23.40-1.i386.rpm
```

You don't need to install all of them. At a minimum, you'll need the MySQL and MySQL-client packages.

The RPM will create the appropriate entries in `/etc/rc.d/` to automatically start and stop the server at system boot and shutdown. The RPM also starts the mysql server, so after the RPM install is complete, you are ready to start using MySQL.

The RPM distributions place the files in different locations than the “tarball” distribution. To examine an RPM to determine where the files were placed, use the RPM query option.

```
$ rpm -qp1 MySQL-<VERSION>.i386.rpm
```

If you wish to determine the location but have discarded the RPM files already, you can query the RPM database.

```
$ rpm -ql MySQL-<VERSION>
```

Another thing to note: the RPM places data in `/var/lib/data` instead of `/usr/local/data`.

Installing from a source distribution

Installing from a source distribution is very different from installing a binary distribution. Since you will be building the software from source code, you will need a full set of tools:

- GNU `gunzip`
- `tar` or GNU `tar`.
- An ANSI C++ compiler. GNU `gcc` 2.95.2 (or higher) is recommended. `egcs` 1.0.2/`egcs` 2.91.66, SGI C++ and SunPro C++ are known to work.
- `make`. Gnu `make` is recommended.

Compiling from source is an inherently involved process with many possible variations depending upon your operating system, your desired configuration, your toolset, etc. As a result, we provide an overview of the process to get you started. However, we assume that you are experienced with building software from source. If you encounter problems building or installing MySQL, please refer to the full MySQL install documentation set at <http://www.mysql.com/documentation>.

The source distributions are named using the following convention: `mysql-<VERSION>.tar.gz`. There is not a special MySQL-Max version of the MySQL source as all versions are compiled from the same code base.

For our example, assume that `mysql-3.23.40.tar.gz` has been already downloaded to `/tmp`.

Just as with the binary install, the first step is to create a user that will be used to run the MySQL server.

```
$ groupadd mysql
$ useradd -g mysql mysql
```

In your filesystem, move to the location where you would like to unpack the source. Unpack the bundle.

```
| $ gunzip -c /tmp/mysql-3.23.40.tar.gz | tar -xf -
```

Move into the newly created mysql directory. You must configure and build MySQL from this location.

```
| $ cd mysql-3.23.40
```

Now, use the `configure` script to configure your build. We use the `prefix` option to set our install location to `/usr/local/mysql`.

```
| $ ./configure --prefix=/usr/local/mysql
```

`configure` offers a host of options that you can use to control how your build is set up. For more help on what's available, run

```
$ ./configure --help
```

Also, check the full install documentation at <http://www.mysql.com/documentation> for a list of commonly used `configure` options.

`Configure` may take a few minutes to complete. Next, we build the binaries.

```
| $ make
```

If all went well, you now have binary version of MySQL. The last thing you need to do is install it.

```
| $ make install
```

The software is now installed. We have a few set-up tasks left to do. Run `mysql_install_db` to create the MySQL grant tables.

```
| $ cd /usr/local/mysql
| $ scripts/mysql_install_db
| Preparing db table
| Preparing host table
| Preparing user table
| Preparing func table
| Preparing tables_priv table
| Preparing columns_priv table
| Installing all prepared tables
| 010726 19:40:05 ./bin/mysqld: Shutdown Complete
| .
| .
| .
```

Set up the ownership of the binaries so they are owned by root and in the MySQL administrator group that you created earlier (in our case, `mysql`).

```
| $ chown -R root /usr/local/mysql
| $ chgrp -R mysql /usr/local/mysql
```

Set the ownership of the data directories to the MySQL administrative user you created earlier (for this example, `mysql`).

```
| $ chown -R mysql /usr/local/mysql/data
```

MySQL is now installed and ready to go. To start the server run `safe_mysqld`:

```
| $ bin/safe_mysqld -user=mysql &
```

If you would like to have MySQL server start automatically at server boot, you can copy `support-files/mysql.server` script to the appropriate location on your system. See the script for more details.

Windows Installation

The distributions for Windows can be found in the same place as the distributions for Unix: at <http://www.mysql.com/downloads> or at one of the mirror sites. Windows installation is simply a matter of downloading the `mysql-<VERSION>.zip`, unzipping it, and running the setup program

The default install location for MySQL Windows is `c:\mysql`. The installer will allow you to change the location, however if you choose to do so, you may need to modify some configuration files to get everything working correctly. Refer to the full MySQL installation documentation at <http://www.mysql.com/documentation> for more information.

The installer will give you the choice between a typical, compact and custom install. We recommend the typical install unless you wish to modify the list of components that are installed. In that case, use the custom install.

The Windows binary distribution contains several servers for you to choose from.

| Server Name | Description |
|----------------------------|---|
| <code>Mysqld</code> | Debug binary with memory allocation checking, symbolic link support and transactional table support (InnoDB and BDB). |
| <code>mysqld-opt</code> | Optimized binary with NO support for transactional tables. |
| <code>mysqld-nt</code> | Optimized binary with support for NT named pipes. |
| <code>mysqld-max</code> | Optimized binary with support for transactional tables. |
| <code>mysqld-max-nt</code> | Optimized binary with support for transactional tables and NT named pipes. |

Once you have the software installed, the next step is to start the server. Though the binaries are the same, the procedure for running the server is different depending on whether you are using Windows 95/98 or Windows NT/2000. Each of these is covered separately.

Starting MySQL on Windows 95/98

In order to run MySQL on a Windows 95/98 system, you'll need to have TCP/IP support installed. This can be found on your Windows CD-ROM if you haven't installed it already.

If you are running Windows 95, you need to make sure you have the right version of Winsock. MySQL requires Winsock 2. Obtain the latest and greatest Winsock from <http://www.microsoft.com>.

You will need to choose (from the list above) which server you would like to run. Note that you can run the '-nt' binaries, but you don't get any benefit from it, since named pipes are not supported on Windows 95/98. Assume for our example, we have decided to run `mysql-opt`. To get the server started, open up an MS-DOS window and type:

```
| C:\> c:\mysql\bin\mysqld-opt
```

To stop the server, in an MS-DOS window type:

```
| C:\> c:\mysql\bin\mysqladmin -u root shutdown
```

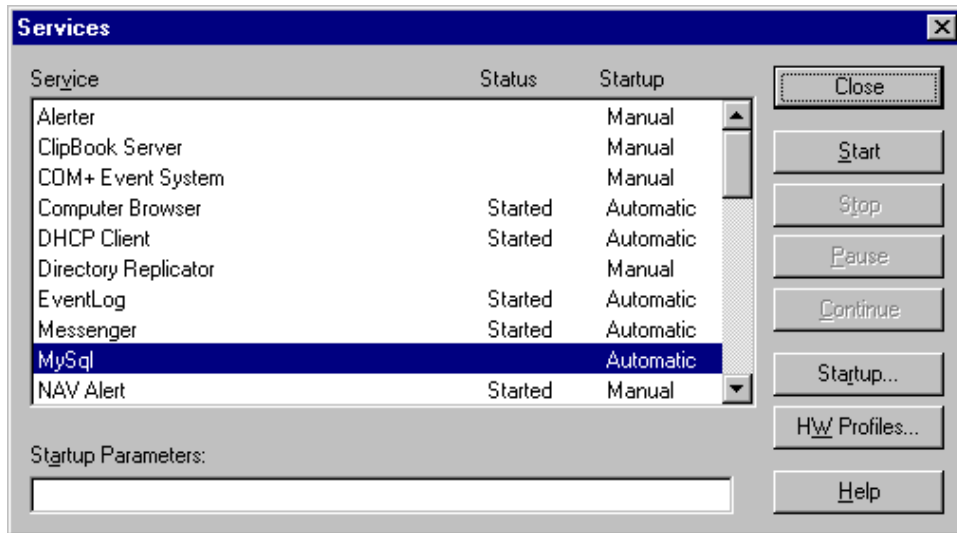
Starting MySQL on Windows NT/2000

On Windows NT/2000, you'll need at least service pack 3 to get the right level of TCP/IP support for MySQL.

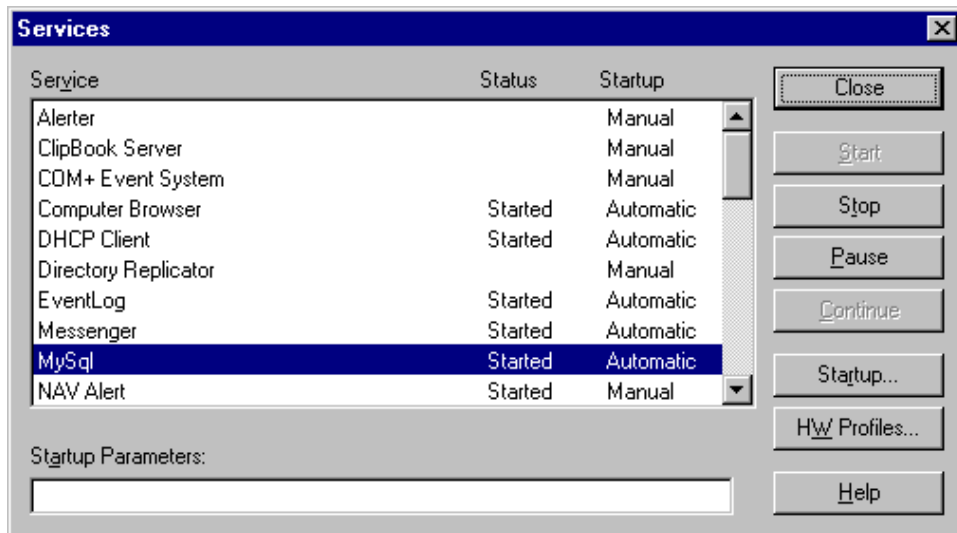
We recommend that you run the MySQL server as an NT service. To install it as a service, open up an MS-DOS window and type:

```
| C:\> c:\mysql\bin\mysqld-nt -install
```

This will create an NT service called 'MySQL'. This service is now available from the Services control panel. To access this, open up your control panel and double-click on the "Services" icon. You will see a MySQL service.



You can start now MySQL by clicking on the “Start” button. If you would like to change the command line options for the MySQL service you can type them in the “Startup Parameters” text box before starting the service. After the service has started, the status shows as “Started”.



To stop the service, press “Stop”. You can also start and stop the service from an MS-DOS prompt using the net start and net stop commands. To start it this way, open an MS-DOS window, and type

```
C:\> net start mysql
The MySQL service is starting.
The MySQL service was started successfully.
```

To stop it again, type

```
C:\> net stop mysql
```

```
| The MySql service is stopping.....  
| The MySql service was stopped successfully.
```

Wrapping up

If all went well, you've successfully installed MySQL. Now what? We recommend that you take a look at Chapter 5 "Database Administration". Here we cover the basics of how to configure and run your server. After that, you'll be all set to start developing applications MySQL.

If you had problems getting MySQL to install, please refer to the full MySQL documentation at <http://www.mysql.com/documentation> for help. There you will find the most up-to-date information as well as more details about installation steps for other operating systems.