

Novell Developer Kit

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MYSQL ON NETWARE®



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Preface

MySQL is a relational database management system (RDBMS) and the most popular open source database.

Because MySQL was ported to the NetWare[®] operating system, developers now have access to a low-cost persistent storage solution. The current MySQL port is based on the 4.0.1-alpha version of the MySQL source code.

For additional information about MySQL, refer to the following resources:

- ♦ For general information about MySQL, see <http://www.mysql.com> (<http://www.mysql.com>).
- ♦ For documentation on MySQL, see <http://www.mysql.com/doc> (<http://www.mysql.com/doc>).

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Beta Notes

This document walks you through the steps that are necessary to create a simple database (for example, to help the city zoo track their animals) and assumes you already have a basic working knowledge of SQL.

Most of the steps are valid with MySQL on any operating system, but some NetWare[®] specific information is also noted.

Installing SQL

This section is NetWare specific. Your first step is to install MySQL on your NetWare server. MySQL is currently supported on NetWare 6 (SP1 or later) with updated [Libraries for C \(LibC\)](http://developer.novell.com/ndk/libc.htm) (<http://developer.novell.com/ndk/libc.htm>). For the steps necessary to install LibC and MySQL, see the following sections:

- ♦ “Setting Up LibC” on page 9
- ♦ “Setting Up MySQL” on page 10

Setting Up LibC

To update your LibC files on your NetWare server, complete the following steps:

- 1** Download and install LibC onto your client machine (see <http://developer.novell.com/ndk/libc.htm>).
- 2** Copy all the *.nlm files from the LibC directories to the c:\nwserver directory on your server.
- 3** Copy all the *.msg files from the LibC directories to the c:\nwserver\nls\4 directory on your server.

4 Reboot your server.

HINT: You can load the dosfat.nss file on the server's command prompt to create a volume for your C: drive, which simplifies Steps 2 and 3.

Setting Up MySQL

To set up your SQL environment, complete the following steps:

- 1 Download the MySQL for NetWare file (see <http://developer.novell.com/ndk/leadedge.htm#167>).
- 2 Extract the zip file to the root of the sys: volume (or another volume of your choice) on your server.
- 3 Add the directory where MySQL was installed to your server's search path by typing the following command on the server's console:

```
SEARCH ADD SYS:\MYSQL\BIN
```

NOTE: This command should also be added to the autoexec.ncf file in the sys:\system directory.

- 4 Enter the following command on the server's console to create the required initial database:

```
mysql_install_db
```

You might be prompted to "press any key" after the process has finished.

MySQL is now properly installed on your server, and you are ready to start the MySQL server.

Operating SQL

You are now ready to operate the MySQL server and the MySQL monitor. The monitor is a simple client program that you can use to send SQL commands to the server.

Running the Server

- 1 To start the server, enter the following at the console:

```
mysqld_safe
```

- 2 To check the server's status, enter the following at the console:

```
mysqladmin status
```

- 3** If you need to stop the server, enter the following at the console:

```
mysqladmin shutdown
```

NOTE: Many MySQL commands create their own screens on NetWare and indicate "press any key" to close their screens. This behavior is specific to NetWare.

Running the Monitor

To work with the SQL monitor, complete the following steps:

- 1** To start the monitor, enter the following at the server prompt:

```
mysql
```

You should now see a "mysql>" prompt.

- 2** To see the status of the monitor, enter the following at the mysql prompt:

```
status;
```

- 3** To exit the monitor, enter the following at the mysql prompt:

```
quit;
```

Creating a Database

You can now create a database for the city zoo.

- 1** To create a database and name it "zoo," enter the following at the mysql prompt:

```
CREATE DATABASE zoo;
```

- 2** To see any databases that are currently hosted by your MySQL server, enter

```
SHOW DATABASES;
```

You should see the following three databases:

- ♦ mysql, which is where the MySQL server stores its own information and settings
- ♦ test, which is an empty database provided for your convenience
- ♦ zoo, which is the database that you just created for the city zoo

- 3** To switch to your new database, enter

```
USE zoo;
```

- 4** To determine the current database in use, enter

```
SELECT DATABASE();
```

When the funding runs out on your consulting job for the local zoo, you can delete the database by entering

```
DROP DATABASE database_name;
```

Creating a Table

With your new database, you can create the first table—perhaps one for all the animals in the zoo.

- 1** To create a table for zoo animals, type the following at the mysql prompt:

```
CREATE TABLE animal
(name VARCHAR(20),
species VARCHAR(20),
gender CHAR(1),
birth DATE);
```

- 2** To retrieve all the attributes of your table, enter

```
DESCRIBE animal;
```

- 3** To see all the tables in the current database, enter

```
SHOW TABLES;
```

You can delete a specific table by entering

```
DROP TABLE table_name;
```

Populating a Table

There are two basic ways to assign data to a table: using an insert statement and loading a list of entries.

- 1** To use an SQL insert statement, enter the following at a MySQL prompt:

```
INSERT INTO animal
VALUES ('Fluffy', 'Elephant',
'f', '1997-02-14');
```

- 2** To load a list of entries from a tab-delimited file, enter the following:

```
LOAD DATA LOCAL INFILE
'sys:/animal.dat' INTO TABLE animal;
```

The preceding command assumes that the following data is located in the tab-delimited animal.dat file, which is located at the root directory of the sys:\ volume:

Name	Species	Gender	Birth
Pokey	Cheetah	m	1995-04-21
Stumpy	Giraffe	f	1999-07-04
Tiny	Lowland Gorilla	m	1989-10-31
Midnight	Snow Leopard	f	1985-12-01
Speedy	Radiated Tortoise	m	1972-01-17

Querying a Table

The next steps show the various types of queries and results that you can now run on your database.

- 1** To retrieve all the information from your database, enter the following at the mysql prompt:

```
SELECT * FROM animal
```

The preceding request returns the following:

Name	Species	Gender	Birth
Fluffy	African Elephant	f	1997-02-14
Pokey	Cheetah	m	1995-04-21
Stumpy	Giraffe	f	1999-07-04
Tiny	Lowland Gorilla	m	1989-10-31
Midnight	Snow Leopard	f	1985-12-01
Speedy	Radiated Tortoise	m	1972-01-17

- 2** To return a list of all animals that were born after January 1, 1995, enter the following:

```
SELECT name FROM animal
WHERE birth >= '1995-1-1';
```

The preceding request returns the following:

```
name
Fluffy
Pokey
Stumpy
```

Creating User Accounts

Now that you have a simple zoo database, you want to ensure that various zoo employees don't have access to the wrong data. You can assign rights to different employees by creating user accounts and granting those users specific rights.

Setting Up Initially

The database named "mysql" contains the MySQL server's information and settings. This section explains how to view that information and use it to create user accounts.

- 1 To switch to the mysql database, enter the following from the mysql prompt:

```
USE mysql;
```

- 2 To examine the information about the current user, enter

```
SELECT host, user, password FROM user;
```

The preceding request returns the following information:

host	user	password
localhost	root	
localhost		

In MySQL, users are always associated with a host or segment of hosts.

The second line of the preceding table shows that you can have a guest account (that is, a user with a blank user name) that can access the database. Any user name that is not found in the table defaults to the guest account, which has rights only to see the names of the databases and to see the database named "test."

According to the first line of this table, there is one user root, who can connect only from the localhost and who has no password.

WARNING: If you don't change the root password, anyone that has access to your server's console can log in and create, change, or delete any information or database.

- 3 To change the user password for the root user, enter the following at the mysql prompt:

```
SET PASSWORD FOR root@'localhost' =  
PASSWORD('secret');
```

Now that you have a password associated with your root user, you need to add an option to prompt you for your password whenever the monitor starts.

- 4 To add a password prompt, enter the following at the mysql prompt:

```
mysql -p
```

The next step addresses the problem that you can connect to the database from only the localhost.

- 5 To allow access to the database, create another root account that has access from anywhere by entering the following at the mysql prompt:

```
GRANT ALL ON *.* TO root@'%'  
IDENTIFIED BY 'secret'  
WITH GRANT OPTION;
```

The preceding request is read, "Grant all rights (ALL) on all databases and tables (*.*) to the user root coming from any host (%) with the password 'secret' and with the ability to grant rights to other users (GRANT OPTION)."

Creating a Zoo Keeper Account

You can now create a new user account for the zoo keeper that has full access right, but only inside the zoo database.

- 1 To create a new zoo keeper account, enter the following from the mysql prompt:

```
GRANT ALL ON zoo.* TO keeper@'%'
IDENTIFIED BY 'secret';
```

The preceding request is read as "Grant all rights (ALL) on all tables in the zoo database (zoo.*) to the user "keeper" coming from any host (%)."

- 2** Try to connect to the MySQL server from the localhost with the keeper user by entering the following from the server prompt:

```
mysql -u keeper -p
```

If you now try to switch to the zoo database, with the USE command, you receive a "permission denied" error. To explain what happened, examine the following updated user table:

host	user	password
localhost	root	428567f408994404
localhost		
%	root	428567f408994404
%	keeper	428567f408994404

When MySQL searches for a user, it first finds the best match it can with the host. Since there is a localhost with a guest user, MySQL selects the guest user before the keeper user when it connects from the localhost.

To correct the side effect, follow either Step 3 or Step 4.

- 3** To create a keeper account that can log in from the localhost, enter the following from the mysql prompt:

```
GRANT ALL ON zoo.* TO keeper@'localhost'
IDENTIFIED BY 'secret';
```

If you want to delete the guest user from the database to eliminate confusion instead, follow Step 4.

- 4** To delete the guest user, enter the following two commands:

```
DELETE FROM user WHERE user='';
FLUSH PRIVILEGES;
```

- 5** To check the rights that were assigned to a specified user, enter

```
SHOW GRANTS FOR keeper@'%' ;
```


Revision History

The following table lists changes made to the MySQL Beta documentation:

Release Date	Changes
September 2002	New MySQL beta document.

