

Novell MySQL* on NetWare®

4.0

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INSTALLATION GUIDE

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MySQL on NetWare Administration Guide

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About This Guide

This guide provides an overview of MySQL and describes how to install it on NetWare 6.5 if it was not installed during the NetWare 6.5 installation process. It also includes information about installing the MySQL JDBC* driver([and configuring MySQL to run with the Novell® eXtend™ AppServer 4.0](#)) .

This guide is intended for network administrators and developers who need to understand the benefits of MySQL and how to install it in the NetWare® environment.

To effectively use MySQL, a basic knowledge of the structured query language (SQL) is required.

This guide is divided into the following sections:

[Chapter 1, “MySQL Overview,” on page 5](#)

[Chapter 2, “MySQL on NetWare,” on page 9](#)

Additional Documentation

Once MySQL is installed, visit the [MySQL Web site \(http://www.mysql.com/documentation/index.html\)](http://www.mysql.com/documentation/index.html) for official MySQL documentation.

Documentation Conventions

In this documentation, a greater-than symbol (>) is used to separate actions within a step and items within a cross-reference path.

Also, a trademark symbol (®, ™, etc.) denotes a Novell trademark. An asterisk (*) denotes a third-party trademark.

MySQL commands are presented using the conventions found in the [MySQL documentation \(http://www.mysql.com/documentation/mysql/bychapter/manual_Introduction.html#Manual_conventions\)](http://www.mysql.com/documentation/mysql/bychapter/manual_Introduction.html#Manual_conventions).

1

MySQL Overview

MySQL is an open-source, structured query language (SQL) database. When combined with a Web application, MySQL serves as a very reliable and scalable database for use with business solutions such as eCommerce and business-to-business.

This chapter introduces you to MySQL.

MySQL: A Database Management System

MySQL is a database management system (DBMS). A database is a structured collection of data. It might be anything from a simple shopping list to a picture gallery, to the vast amounts of information in a corporate network.

To access, manipulate, and process data stored in a database, you need a DBMS. Because computers are very effective at handling large amounts of data, database management plays a central role in computing.

But more than being a DBMS, MySQL is a relational database management system (RDBMS). A relational database stores data in separate tables rather than putting all the data into one large repository. Doing so adds tremendous speed and flexibility. The tables are linked by defined relations making it possible to combine data from several tables upon request.

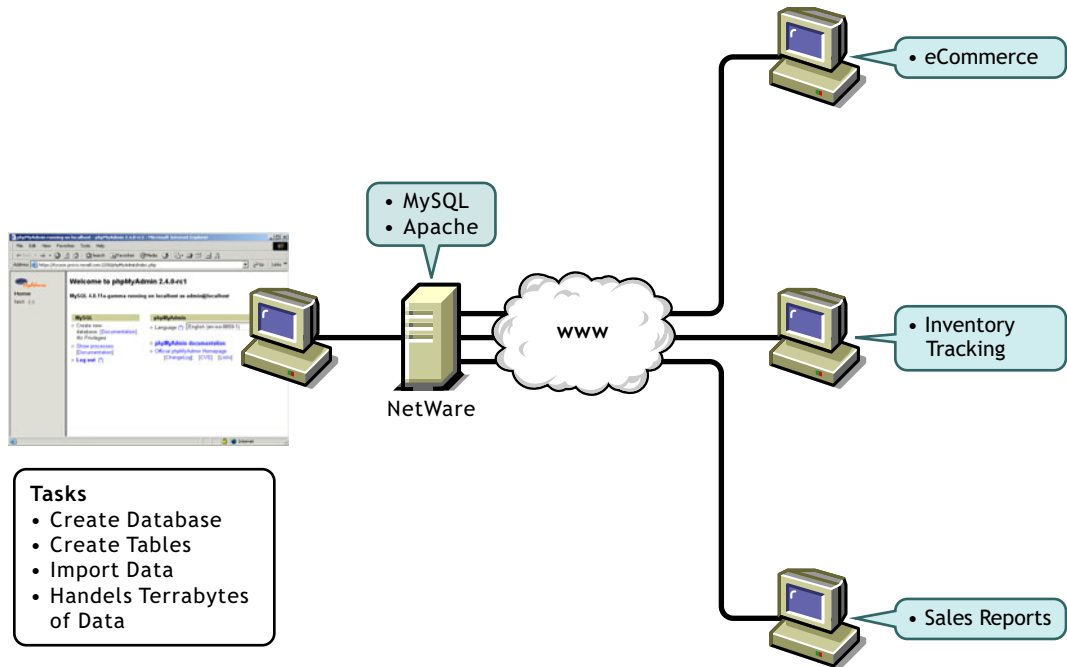
RDBMSs play a central role in many types of eCommerce and eBusiness solutions. Amazon.com and eBay.com are examples of complex eCommerce solutions that depend on database applications to transact business with their customers and partners.

Putting MySQL to Work: Web Database Applications

By itself, a database offers little value. Even a database such as MySQL, capable of storing as much as eight terabytes (TB) of data, does little good if the data cannot be quickly searched, retrieved, and manipulated. For the database to be of any value, you must create a database application that is capable of communicating with the database.

Using a scripting language, such as PHP or Perl—both included with NetWare 6.5—you can create a Web database application, or front end, for use with your MySQL database. PHP issues commands to the MySQL server, which runs constantly, listening for commands and then manipulating the database accordingly, much like a Web server.

Figure 1 MySQL: Running Three Database Applications Hosted on the World Wide Web.



Therefore, PHP (or Perl) provides the application component, and MySQL provides the database component, giving you a solid Web database application. Your customers can then access the database through a Web browser.

Benefits of MySQL

Whether you are a Web developer, CNE, or a dedicated network administrator with an interest in building database applications, MySQL is easy to use, yet extremely powerful, secure, and scalable. And because of its small size and speed, it is the ideal database solution for Web sites.

Some of its advantages include the following:

- ◆ *It's easy to use:* While a basic knowledge of SQL is required—and most relational databases require the same knowledge—MySQL is very easy to use. With only a few simple SQL statements, you can build and interact with MySQL.
- ◆ *It's secure:* MySQL includes solid data security layers that protect sensitive data from intruders. Rights can be set to allow some or all privileges to either individuals or groups. Passwords are encrypted.
- ◆ *It's inexpensive:* MySQL is included for free with NetWare 6.5 and available by free download from www.mysql.com (<http://www.mysql.com>).
- ◆ *It's fast:* In the interest of speed, MySQL designers made the decision to offer fewer features than other major database competitors, such as Sybase* and Oracle*. However, despite having fewer features than the other commercial database products, MySQL still offers all of the features required by most database developers.
- ◆ *It's scalable:* MySQL can handle almost any amount of data, up to as much as 50 million rows or more. The default file size limit is about 4 GB. However, you can increase this number to a theoretical limit of 8 million TB of data.

- ♦ *It manages memory very well:* MySQL has been thoroughly tested to prevent memory leaks.
- ♦ *It supports Novell Cluster Services:* MySQL on NetWare runs effectively with Novell Cluster Services™, letting you add your database solution to a Novell cluster. If one server goes down, MySQL on an alternate server takes over and your customers won't know that anything happened.
- ♦ *It runs on many operating systems:* MySQL runs on many operating systems, including Novell® NetWare®, Windows* Linux*, many varieties of UNIX* (such as Sun* Solaris*, AIX*, and DEC* UNIX), OS/2*, FreeBSD*, and others.
- ♦ *It supports several development interfaces:* Development interfaces include JDBC, ODBC, and scripting (PHP and Perl), letting you create database solutions that run not only in your NetWare 6.5 environment, but across all major platforms, including Linux, UNIX, and Windows.

What's Next

For information about installing MySQL and using it on the NetWare platform, see [Chapter 2, “MySQL on NetWare,”](#) on page 9.

For information about using MySQL, see the [MySQL Documentation \(http://www.mysql.com/documentation/index.html\)](http://www.mysql.com/documentation/index.html) Web site.

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MySQL on NetWare

If you didn't install MySQL during the NetWare 6.5 installation process, you can run a post-installation. Once installed, you can start the MySQL server and create a simple database to test the installation.

This chapter shows you how to perform a post-NetWare 6.5 install of MySQL, and then discusses various issues related to MySQL on NetWare[®]. This chapter contains the following sections:

- ♦ “Installing MySQL” on page 9.
- ♦ “Setting Up MySQL” on page 10.
- ♦ “Testing MySQL Using PHP” on page 10.
- ♦ “Creating Your First Database” on page 10.
- ♦ “Using the JDBC Driver with MySQL” on page 11.
- ♦ “What’s Next” on page 11.

Installing MySQL

If you did not install MySQL during the NetWare 6.5 installation, you can install it at any time from the NetWare 6.5 Products CD. ([add remote install instructions for beta 3](#))

- 1** Insert the NetWare 6.5 Products CD into the drive of the server where you want to install MySQL.
- 2** Start the NetWare GUI by typing **startx** at the system console.
- 3** Click Novell > Install > Add.
- 4** In the Source Path dialog box, enter the path to the CD, or click the Browse button and locate the CD.
- 5** Select the POSTINST.NI response file and click OK.
- 6** From the products list, select MySQL.
- 7** (Optional) Select Apache2 Web Server.
- 8** Click Next.
- 9** When prompted, enter your administrator username and password, and your user context.
- 10** Click OK.
- 11** Follow the remaining screen prompts.

Setting Up MySQL

Once you have installed MySQL, you can start the MySQL monitor and then set up your administration password.

To start MySQL and set your administrator password:

- 1 At the NetWare console, type **mysqld_safe** and press Enter to start the MySQL server.
- 2 Type **mysqladmin -u root password password** and press Enter to set the root password.

Replace password with your own password.

Testing MySQL Using PHP

Once MySQL is installed, you can verify that it is working by running a PHP file from a Web browser. However, first make sure that PHP is properly configured.

To verify that PHP is included in the Apache configuration file:

- 1 Open the SYS:\Apache2\conf\httpd.conf file.
- 2 If it is not already included, add the following command at the end of the file:

```
include SYS:\Apache2\conf\mod_php.conf
```

- 3 Save the file and exit.
- 4 Restart the Apache Web server by typing **Apache2 restart** at the system console.

Using the **restart** command does not unload Apache, but simply rereads the httpd.conf file. This allows uninterrupted service for users of your Web sites.

To test MySQL using a PHP file:

- 1 Copy the SYS:\PHP\webdemo\phpinfo.php file to the SYS:\Apache2\htdocs directory.
- 2 Restart the Apache Web server by typing **Apache2 restart** at the system console.

Using the **restart** command does not unload Apache, but simply rereads the httpd.conf file. This allows uninterrupted service for users of your Web sites.

- 3 From a Web browser on a client computer, enter the URL of your Apache Web server, specifying phpinfo.php. For example:

```
http://www.myserver.com/phpinfo.php
```

Creating Your First Database

Once you have verified that MySQL is functioning properly, you can begin creating your own databases and tables.

- 1 Type **mysql** at the NetWare console to start the MySQL monitor.
- 2 At the MySQL monitor prompt, type **CREATE DATABASE name** and press Enter. For example, **CREATE DATABASE Zoo**.
- 3 Type **USE name** to select the new database and press Enter. For example, **USE Zoo**.
- 4 Type **CREATE TABLE tablename (columnname VARCHAR(20))** and press Enter. For example, **CREATE TABLE reptiles (species VARCHAR(20))**.

VARCHARnumber indicates the total number of characters allowed, per record. A record is equivalent to a single cell in a table.

- 5 Type `INSERT INTO tablename VALUES('value')` and press Enter to insert data into the table. For example, `INSERT INTO species VALUES('python')`.
- 6 Type `SELECT * FROM tablename` and press Enter to display the contents of the table. For example, `SELECT * FROM animals`.
- 7 Type `QUIT` and press Enter to exit the MySQL monitor.

Using the JDBC Driver with MySQL

If you have installed the JDBC driver for use with MySQL, you need to grant the appropriate rights to the user in order to communicate with your MySQL database. For more information, see [MySQL Java* Connectivity \(JDBC\)](http://www.mysql.com/doc/en/Java.html) (<http://www.mysql.com/doc/en/Java.html>).

The driver `com.mysql.jdbc` driver must be loaded using the `Class.forName()` method. The default port is 3306 and the default database name is the same as the username you use to connect to MySQL. Use the following syntax:

```
jdbc:mysql://hostname:port/dbname?param1=value1&param2=value2
```

An example connection would look like this:

```
Class.forName("com.mysql.jdbc");  
java.sql.Connection conn;  
conn = DriverManager.getConnection("jdbc:mysql://<hostname>:  
<port>/<database>", "user", password);
```

For JDBC tutorials, see the Sun [Java Learning Center](http://java.sun.com/products/jdbc/learning.html) (<http://java.sun.com/products/jdbc/learning.html>).

Also, refer to the JDBC driver readme located at `sys:\mysql\java`. The readme is contained in the driver's ZIP file.

What's Next

MySQL runs the same way on NetWare as it does on all other major platforms. Therefore, you can now refer to the [MySQL Documentation](http://www.mysql.com/documentation/index.html) (<http://www.mysql.com/documentation/index.html>) on the MySQL Web site for complete instructions on using and managing MySQL.

