

# LAMP Quickstart for Red Hat Enterprise Linux 4

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## ***Introduction***

A very common way to build web applications with a database backend is called a “LAMP Stack”, where “LAMP” stands for the Linux® operating system, the Apache web server, the MySQL database, and the PHP (or Perl or Python) web application language. This Quickstart will take you through configuring and starting up the LAMP components, and then downloading, installing and testing a complete LAMP application, an online DVD Store written by Dell engineers. The DVD Store application, including four PHP pages and the code needed to build and load the MySQL database, can be used as a model for your own LAMP web application.

This Quickstart assumes you have successfully installed Red Hat® Enterprise Linux 4 on your server (RHEL4 ES edition was used for the test but the instructions should be similar for the other RHEL4 editions) and are moderately familiar with Linux commands (you will need to be able to edit files). Total time to work through the Quickstart should be 30 – 60 minutes.

## ***Getting Started***

For ease of use, log into the system as root.

Verify that the required packages have been installed. To do this, click on *Applications => Systems Settings => Add/Remove Packages*. This will bring up a window showing all of the packages available, and what has already been installed, sorted by groups. Scroll down to the **Servers** section and verify the **Web Server** and **MySQL Database** have been checked. Under **details** of **MySQL Database**, verify that both *php-mysql* and *mysql-server* have also been checked. If any of these items have not been previously checked, simply click the update button at the bottom of the window and provide the appropriate installation media as requested.

For purposes of this document, the hostname is “rhel4es” and the root password is “password” (you should use something more creative, of course!). **You will need to ensure that all of the appropriate host name information has been set in your network environment (updating DNS, or /etc/hosts, etc.)** You will need to create a non-root user to own the PHP and MySQL code. We used user “web” with password “web”.

To create the web user, open a terminal shell (right click anywhere on the desktop, select “Open Terminal”). Type the following (ideally you can cut and paste right from this Quickstart to your Linux command shell). In this document commands that you type or that are printed by the computer are indicated in monospace font.

```
useradd web
passwd web
```

At this point, it will prompt you for the new password. Use “web” as the password (ignore the warnings for BAD PASSWORD – you can always change this later).

For the rest of this document you will enter some commands as root and some as web. [Hint: use two Linux command shells, one for root, one for web. If you are logged in as **root** you can use the command `su - web` to login as web in that command shell].

## ***Start and Test Apache***

To run the Apache web server you first need to make a small modification to the Apache configuration file, then start the Apache service (known as “httpd”), and finally configure it so it will always start when the machine is booted:

```
cd /etc/httpd/conf
cp httpd.conf httpd.conf.orig
gedit httpd.conf
```

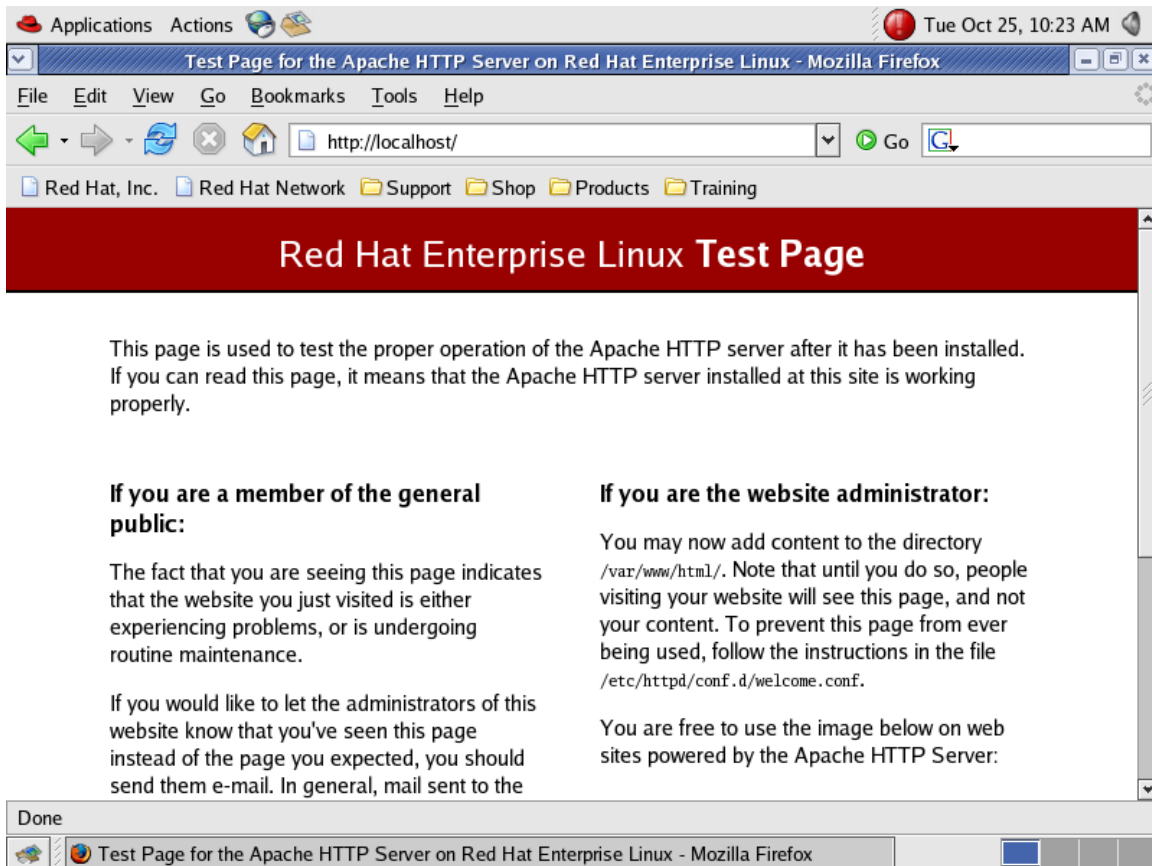
Find the line with `#ServerName new.host.name:80` and add below it:

```
ServerName rhel4es
```

Save your changes; close the window. Next, you will start the web server, and configure it so that it will automatically start on the next reboot. Type the following into the shell window:

```
service httpd start
chkconfig httpd on
```

To test Apache, bring up a web browser with URL <http://localhost>. You should see the Red Hat Enterprise Linux Test Page:



## ***Start and Test MySQL***

Before starting MySQL, you'll need to create a MySQL configuration file from one of the standard ones offered. As **root**, copy the standard small configuration file to `/etc/my.cnf` and add 4 lines to the end of it. Type the following into the terminal window:

```
cd /etc
cp /usr/share/doc/mysql-server-4.1.7/my-small.cnf my.cnf
cat >> my.cnf          <hit Enter, then paste in next 4 lines>
# For DVD Store full text search
ft_min_word_len = 3
ft_stopword_file =
log=/var/lib/mysql/mysql_query.log
<Enter Ctrl-C>
```

Next you need to start the MySQL service (called "mysqld"), and set it to always start when the machine starts. Type the following into the terminal shell:

```
service mysqld start
chkconfig mysqld on
```

Now configure user access to the MySQL database. To change root's password (replace the final "password" with your root password), give privileges to the **web**

user, and remove the default anonymous user, type the following into the terminal shell:

```
mysqladmin -u root password password
mysql -p
```

This will prompt you for the password you just entered above, and start the MySQL monitor. You will need to ensure that you also add access based on your specific host name as well (i.e. web@localhost.localdomain). Type the following at the `mysql>` prompt:

```
grant all privileges on *.* to web@localhost identified by 'web';
grant all privileges on *.* to web@rhel4es identified by 'web';
delete from mysql.user where User='';
exit
```

Login as **web** and test out MySQL:

```
su - web
mysql -u web --password=web
```

This will start the MySQL monitor as the user “web”. Type the following at the `mysql>` prompt to test it:

```
show databases;
```

You should get output that looks something like:

```
+-----+
| Database |
+-----+
| mysql    |
| test     |
+-----+
2 rows in set (0.00 sec)
```

Type “exit” to leave the MySQL monitor. Type “exit” again to log out as “web”.

This shows that MySQL has been installed with the initial two databases.

## ***Start and Test PHP***

As root, edit the PHP configuration file to point to the correct host and allow access to the web user, then restart Apache to read changes. In the terminal window, type the following:

```
cd /etc
cp php.ini php.ini.orig
gedit php.ini
```

Change three lines to read as follows:

```
mysql.default_host = rhel4es
```

```
mysql.default_user = web
mysql.default_pw = web
```

Save the document, close the window, then continue typing the following into the terminal shell window to restart the web server and put the changes you just made into effect:

```
service httpd restart
```

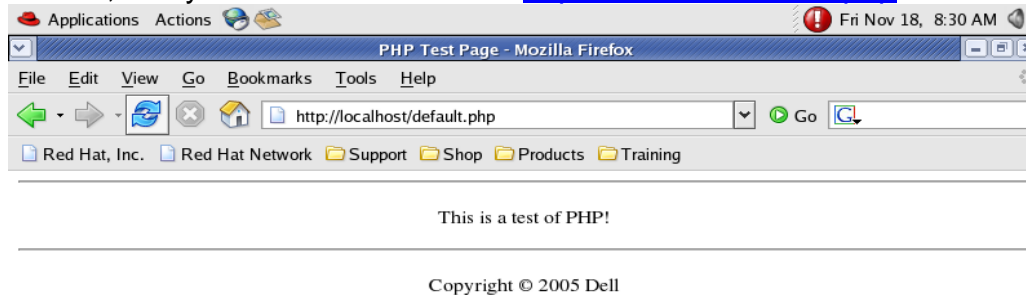
To test PHP, create a test PHP page. Type the following into the terminal window:

```
cd /var/www/html
gedit default.php
```

Add the following to the file:

```
<html>
  <head>
    <title>PHP Test Page</title>
  </head>
  <body>
    <?php
      echo "<hr />";
      echo "<p align=center>This is a test of PHP!</p>";
      echo "<hr />";
      echo "<p align=center>Copyright &copy; 2005 Dell</p>";
    ?>
  </body>
</html>
```

To test, use your browser to access <http://localhost/default.php>. It should look like



## ***Install and Test the DVD Store LAMP Application***

Now you are ready to install a full LAMP application, the Dell DVD Store application. This application has been released by Dell to the open source community under the GPL license and is available for all to use.

First, download in binary the DVD Store files `ds2.tar.gz` and `ds2_mysql.tar.gz` from <http://linux.dell.com/dvdstore> to web's home directory, `/home/web`. To accomplish this, type the following from the terminal window:

```
su - web
wget http://linux.dell.com/dvdstore/ds2.tar.gz
wget http://linux.dell.com/dvdstore/ds2_mysql.tar.gz
```

Then expand these "tarballs" with:

```
tar -xvzf ds2.tar.gz
tar -xvzf ds2_mysql.tar.gz
```

This will create several directories under `/home/web/ds2` with the DVD Store data files and driver programs, as well as the MySQL build and load scripts. Now, as **root**, you will need to create a directory to put the PHP pages:

```
cd /var/www/html
mkdir ds2
```

Now, the PHP files need to be copied to the new directory:

```
cd ds2
cp ~/ds2/mysql/ds2/web/php4/* .
```

Now you are ready to create and test the MySQL DVD Store database. As **web**:

```
cd ~/ds2/mysql/ds2
sh mysql/ds2_create_all_nosp.sh
mysql -u web --password=web
```

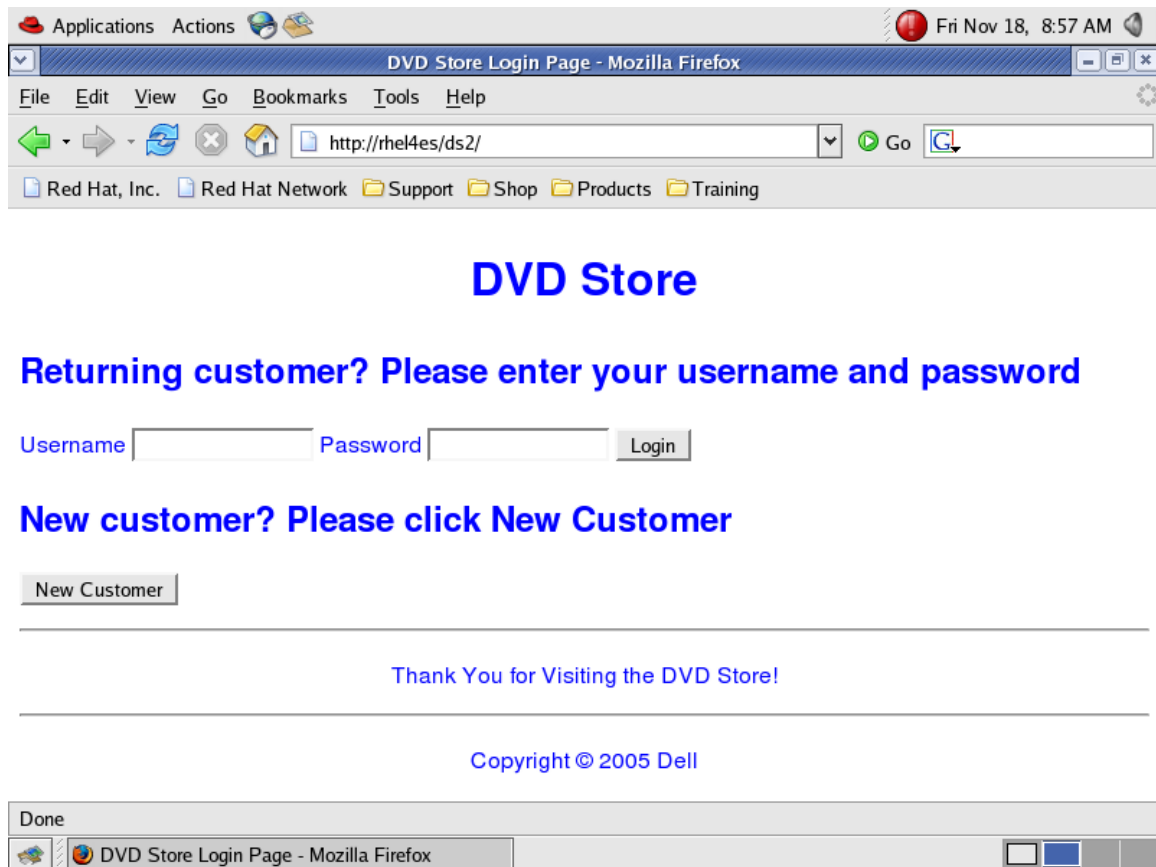
```
mysql> use DS2;
mysql> show tables;
+-----+
| Tables_in_DS2 |
+-----+
| CATEGORIES    |
| CUSTOMERS     |
| CUST_HIST     |
| INVENTORY     |
| ORDERLINES    |
| ORDERS        |
| PRODUCTS     |
| REORDER      |
+-----+
8 rows in set (0.00 sec)
```

```
mysql> select count(*) from CUSTOMERS;
+-----+
| count(*) |
+-----+
|    20000 |
+-----+
1 row in set (0.01 sec)

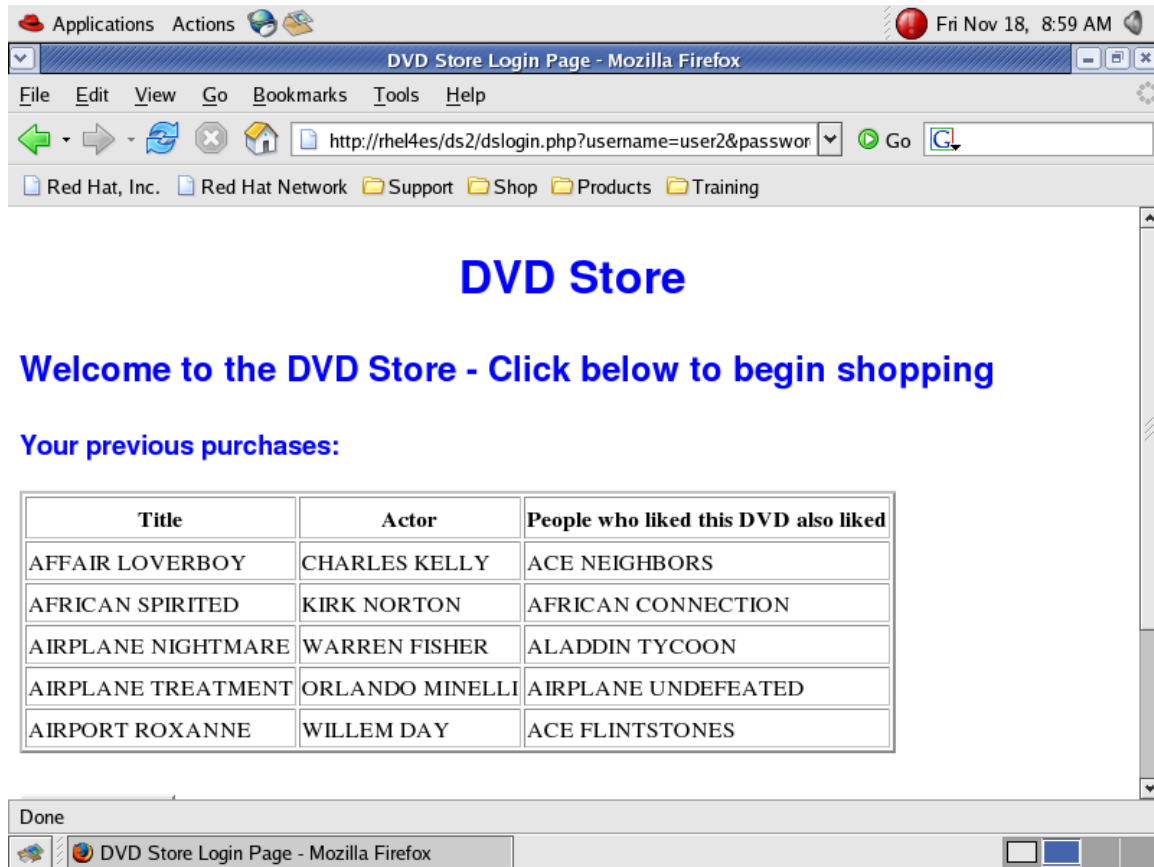
mysql> exit
```

This shows that the DVD Store has been installed correctly with 8 tables and 20,000 initial customers.

The DVD Store LAMP stack is ready for testing. With your browser, access <http://rhel4es/ds2>. You should see the DVD Store Login page:



Login with Username “user2” and password “password”. You should see the following Welcome screen:



Click on “Start Shopping”, search for some DVDs by Title, Actor or Category, add DVDs to your shopping cart, and finally purchase them using your stored credit card number.

You now have a working LAMP stack. By basing your application on the MySQL and PHP code included here, you can jumpstart your own LAMP stack!

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