

# Installing an “OAMP” Server

## HowTo for Installing an “OAMP” Server

**Based on IBM OS/2 Warp 4.5 (MCP) or eCS,  
Apache 2.2, MySQL 5.0 and PHP 5**

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# Installing an “OAMP” Server

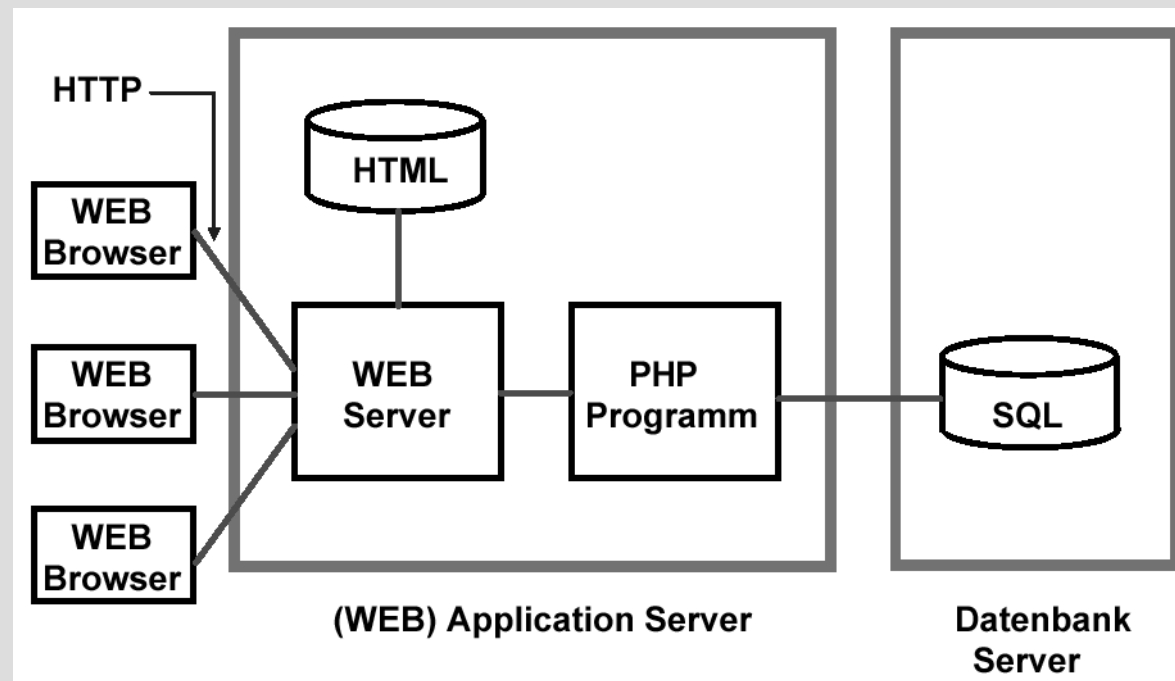
## Introduction

- The acronym 'xAMP' refers to a set of open source software that is used to run web servers that can deliver content statically or dynamically and a database server.
- 'x' stands for the operating system on which the servers are running, often Linux (LAMP), but also Mac OS X (MAMP), Windows (WAMP) and even OS/2 (OAMP, AMPOS2).
- The 'A'pache is the web server itself, 'M'ySQL is the SQL database back-end and 'P'HP is the programming language to create dynamic content depending on user inputs and accessing the data on the database back-end.

# Installing an “OAMP” Server

## Introduction

- The advantage of PHP is that it's a quite easy programming language available for a lot of platforms and with a good database connectivity.



Dynamic web server with PHP, source: Spruth 2004

# Installing an “OAMP” Server

## Overview

- Prerequisites:
  - IBM OS/2 Warp 4.5 (MCP) or eCS with working TCP/IP
  - Copy GCC/LIBC DLLs from libc-0.6.3-csd3 to LIBPATH (e.g., D:\OS2\DLL or D:\ECS\DLL):
    - gcc335.dll
    - libc06.dll
    - libc06x.dll

In eCS 2.0RC these files are already in x:\ECS\DLL.

# Installing an “OAMP” Server

## Overview

- Used software:
  - Download the following packages from <http://smedley.info/os2ports/>:
    - `httpd-2.2.6-os2.zip`
    - `mysql-5.0.45-os2.zip`
    - `php-5.2.4-os2.zip`
  - Download phpMyAdmin from <http://www.phpmyadmin.net/>:
    - `phpMyAdmin-2.11.1.2-all-languages.zip`

# Installing an “OAMP” Server

## Overview

- Recommended directory structure on a JFS drive:
  - For the binaries:
    - E:\server\apache22
    - E:\server\mysql5
    - E:\server\php5
  - For the data:
    - E:\data\htdocs
    - E:\data\mysql

# Installing an “OAMP” Server

## Installation of Apache 2.2

- Unzip the Apache zip archive with:

```
unzip httpd-2.2.6-os2.zip  
      -d httpd-2.2.6-os2
```

- Move the apache2 directory to your desired binary directory for Apache (e.g., E:\server\apache22).
- Get apache.ico and kill.exe from somewhere on the world and place it in the apache2 directory.
- Adjust paths in 'startup.cmd'.

# Installing an “OAMP” Server

## Installation of Apache 2.2

- Create a 'shutdown.cmd' like this in the apache2 dir:

```
/* Rexx script to shut down Apache */  
pid = linein("logs\httpd.pid")  
'kill.exe -TERM 'pid
```

- Create desired program objects of 'startup.cmd' and 'shutdown.cmd' and use apache.ico as icon.



# Installing an “OAMP” Server

## Configuration of Apache 2.2

- Copy httpd.conf.sample to httpd.conf in conf directory, or use the a httpd-std.conf from earlier versions.
- Adjust httpd.conf (do NOT use the original E.EXE from Warp 3/4 for editing):
  - Replace '/apache2/htdocs' with your data directory (e.g., '/data/htdocs') and '/apache2' with your binary directory (e.g., '/server/apache22').
  - If necessary, change all LoadModule entries to the OS/2 DLL names, e.g., 'modules/mod\_foo.so' should read 'modules/foo.dll'.

# Installing an “OAMP” Server

## Configuration of Apache 2.2

- Some basic configuration options:

```
ServerRoot "/server/apache22"
```

```
ServerAdmin you@example.com
```

```
ServerName www.example.com:80
```

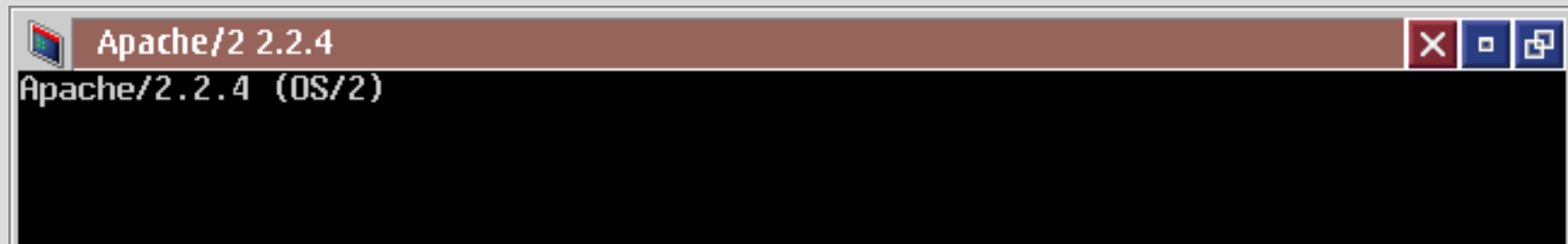
```
DocumentRoot "/data/htdocs"
```

```
<Directory "/data/htdocs">
```

# Installing an “OAMP” Server

## Testing of Apache 2.2

- Save httpd.conf and start the server with 'startup.cmd'. An OS/2 window should open:



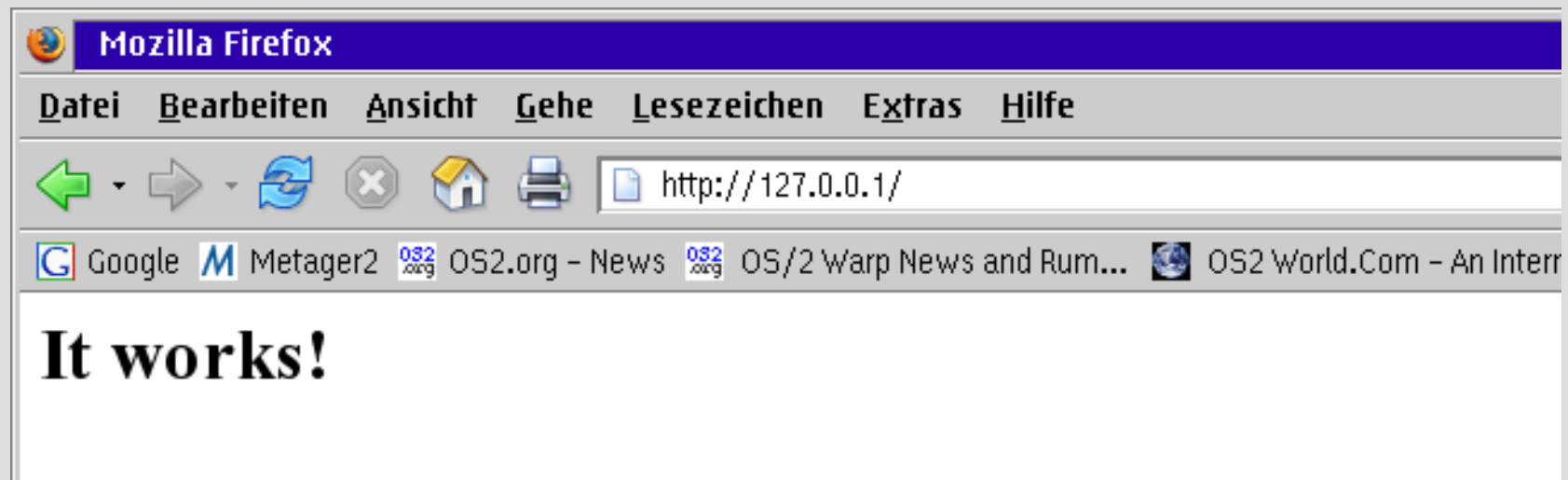
If not, there is a configuration error in httpd.conf. Change the startup.cmd object so the window is not closed after finishing the program and check the error messages!

Maybe it is also necessary to add in x:\etc\hosts your fully qualified hostname before.

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## Testing of Apache 2.2

- Copy the apache22 htdocs directory to your apache data directory (e.g., E:\data\htdocs).
- Open your web browser and enter the IP address of your local machine. In your browser you should get:



# Installing an “OAMP” Server

## Installation of PHP 5 for Apache 2.2

- Unzip the PHP5 zip archive with:

```
unzip php-5.2.4-os2.zip  
      -d php-5.2.4-os2
```

- Move the php5 directory to your desired binary directory for PHP5 (e.g., E:\server\php5).
- Copy php5.dll and apache2\modphp5.dll from your PHP5 bin directory to your apache2 modules directory (e.g., E:\server\apache22\modules).

# Installing an “OAMP” Server

## Configuration of PHP 5 for Apache 2.2

- Copy php.ini-recommended to your etc directory (e.g., D:\mptn\etc) and rename it to php.ini.
- Adjust php.ini (do NOT use the original E.EXE from Warp 3/4 for editing):

- Select module directory:

```
extension_dir =  
    "E:/server/php5/modules"
```

# Installing an “OAMP” Server

## Configuration of PHP 5 for Apache 2.2

- Load extensions available for OS/2:

```
extension=bz2.dll  
extension=curl.dll  
extension=dbase.dll  
extension=exif.dll  
extension=gd.dll  
extension=gettext.dll  
extension=mbstring.dll  
extension=mcrypt.dll  
extension=mysql.dll  
extension=mysqli.dll  
extension=odbc.dll  
extension=openssl.dll  
extension=pdo_mysql.dll  
extension=pgsql.dll  
extension=sqlite.dll
```

# Installing an “OAMP” Server

## Configuration of PHP 5 for Apache 2.2

- On OS/2, PHP 5 doesn't recognize the time zone correctly, so set it in php.ini:

```
date.timezone = Europe/Berlin
```

- To add support for PHP5 in Apache 2.2, edit httpd.conf:

```
LoadModule php5_module modules/modphp5.dll
```

```
DirectoryIndex index.html index.htm  
                index.php
```

```
AddType application/x-httpd-php .php
```



# Installing an “OAMP” Server

## Configuration of PHP 5 for Apache 2.2

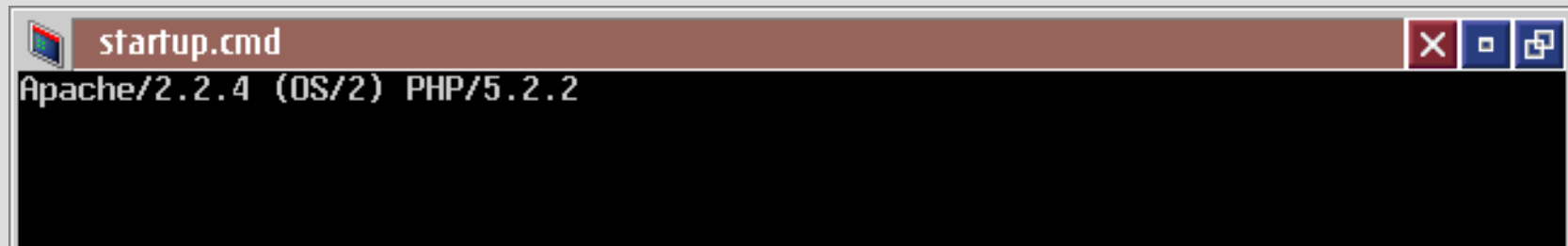
- Some important security settings to set/check in php.ini:  

```
register_globals = Off  
allow_url_fopen = Off  
safe_mode = On  
open_basedir = E:/data/htdocs  
disable_functions = exec,system,passthru,  
                    shell_exec,escapeshellcmd,proc_open,  
                    proc_nice,ini_restore,popen  
display_errors = Off
```
- These are mostly safe settings, but they can result in not correct working PHP-applications if they need more rights. So probably you have to check the documentation for working settings and most important keep your applications and PHP always up-to-date!

# Installing an “OAMP” Server

## Testing of PHP 5 for Apache 2.2

- Save php.ini and httpd.conf and start the server with 'startup.cmd'. An OS/2 window should open:



If not, there is a configuration error in php.ini and/or httpd.conf. Change the startup.cmd object so the window is not closed after finishing the program and check the error messages!

# Installing an “OAMP” Server

## Testing of PHP 5 for Apache 2.2

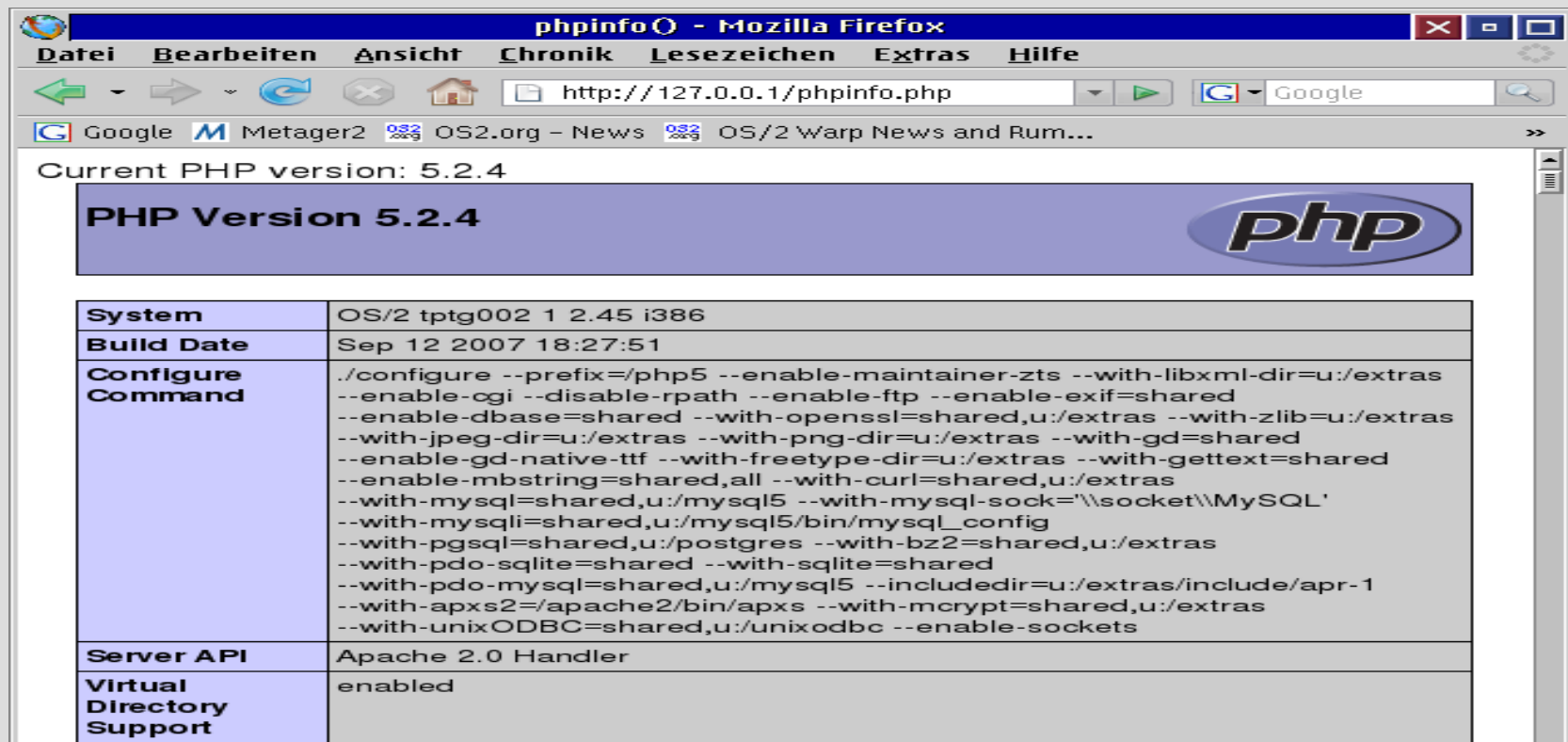
- Create a file phpinfo.php in your apache data directory (e.g., E:\data\htdocs):

```
<?php
echo 'Current PHP version: ' . phpversion();
echo
// Show all information (default: INFO_ALL)
phpinfo();
?>
```


# Installing an “OAMP” Server

## Testing of PHP 5 for Apache 2.2

- Open your web browser, enter the IP address of your local machine. Point to phpinfo.php. You should get:



Current PHP version: 5.2.4

**PHP Version 5.2.4** 

<b>System</b>	OS/2 tptg002 1 2.45 i386
<b>Build Date</b>	Sep 12 2007 18:27:51
<b>Configure Command</b>	<pre>./configure --prefix=/php5 --enable-maintainer-zts --with-libxml-dir=u:/extras --enable-cgi --disable-rpath --enable-ftp --enable-exif=shared --enable-dbase=shared --with-openssl=shared,u:/extras --with-zlib=u:/extras --with-jpeg-dir=u:/extras --with-png-dir=u:/extras --with-gd=shared --enable-gd-native-ttf --with-freetype-dir=u:/extras --with-gettext=shared --enable-mbstring=shared,all --with-curl=shared,u:/extras --with-mysql=shared,u:/mysql5 --with-mysql-sock='\\socket\\MySQL' --with-mysqli=shared,u:/mysql5/bin/mysqli_config --with-pgsql=shared,u:/postgres --with-bz2=shared,u:/extras --with-pdo-sqlite=shared --with-sqlite=shared --with-pdo-mysql=shared,u:/mysql5 --includedir=u:/extras/include/apr-1 --with-apxs2=/apache2/bin/apxs --with-mcrypt=shared,u:/extras --with-unixODBC=shared,u:/unixodbc --enable-sockets</pre>
<b>Server API</b>	Apache 2.0 Handler
<b>Virtual Directory Support</b>	enabled

The web server is running now with PHP5 support!

# Installing an “OAMP” Server

## Installation of MySQL 5.0

- Unzip the MySQL5 zip archive with:

```
unzip mysql-5.0.45-os2.zip  
      -d mysql-5.0.45-os2
```

- Move the mysql5 directory to your desired binary directory for MySQL5 (e.g., E:\server\mysql5).
- Create the desired program objects for the MySQL executables.

# Installing an “OAMP” Server

## Installation of MySQL 5.0

- Creating the initial databases:
  - Use the included Zip-file (> V5.0.26):
    - Unzip the data zip archive with:

```
unzip mysql5_sample_database.zip  
-d mysql5_sample_database
```

- Move the data directory to your MySQL data directory (e.g., E:\data\mysql\data).

If you are using the database from V5.0.26 you probably want to delete the entry's of Pauls server later with:

```
mysql> DELETE FROM user WHERE Host='mail.smedley.info';
```

# Installing an “OAMP” Server

## Installation of MySQL 5.0

- Creating the initial databases (prior V5.0.26):
  - Get them from the Windows install zip :- ( :
    - Download mysql-noinstall-5.0.2x-win32.zip from <http://www.mysql.org/downloads/mysql/5.0.html>
    - Unzip archive to a temporary directory.
    - Get the data directory and copy it to your MySQL data directory (e.g., E:\data\mysql\data).
    - Delete the Windows stuff :-)

# Installing an “OAMP” Server

## Installation of MySQL 5.0

- Creating the initial databases (alternative):
  - Create them with the `mysql_install_db-script` (never tried it, see `readme.os2` of Paul's MySQL zip file).  
You need a working `sh.exe` and `sed.exe` to use the script!

Note that eCS 1.2 comes with an incompatible `sed.exe` in `\ecs\bin` on the boot drive!

Rename it before running the script.



# Installing an “OAMP” Server

## Configuration of MySQL 5.0

- Create a file my.cnf in your etc directory

(e.g., D:\mptn\etc):

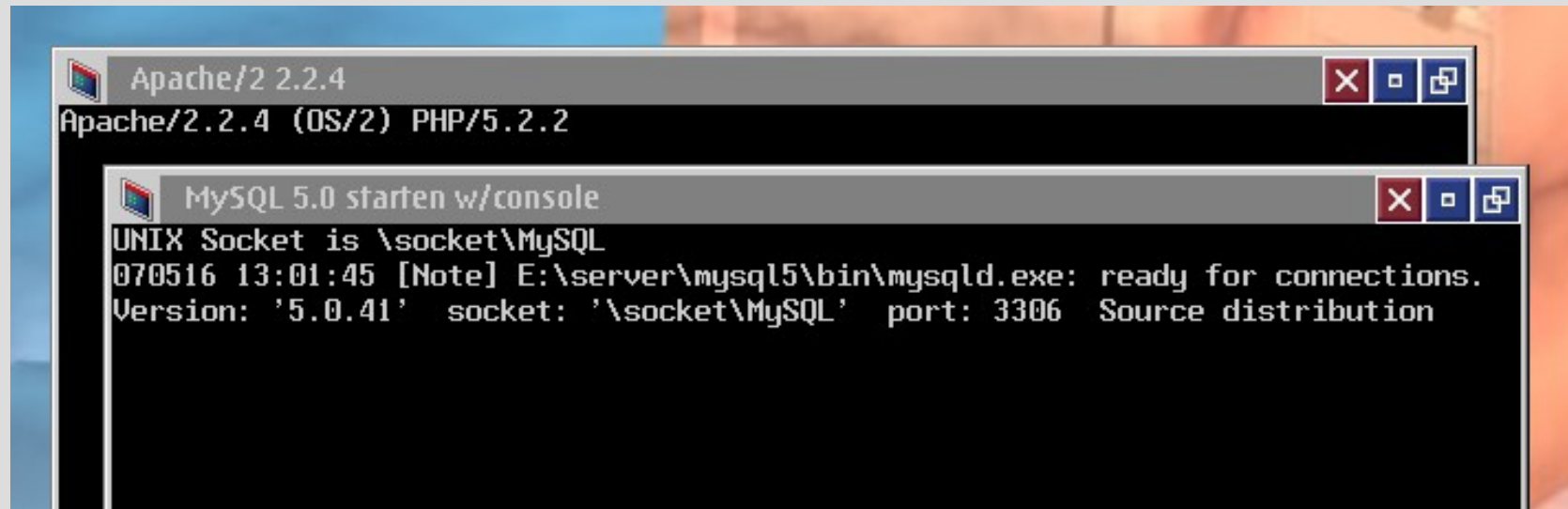
```
[ client]
compress
user=root
```

```
[ mysqld]
user=mysql
basedir=e:/server/mysql5
datadir=e:/data/mysql/data
skip-innodb #deactivate innodb
```

# Installing an “OAMP” Server

## Testing of MySQL 5.0

- Open an OS/2 window, go to the MySQL bin directory, and start the MySQL database server with `'mysqld.exe --console'`. You should get:



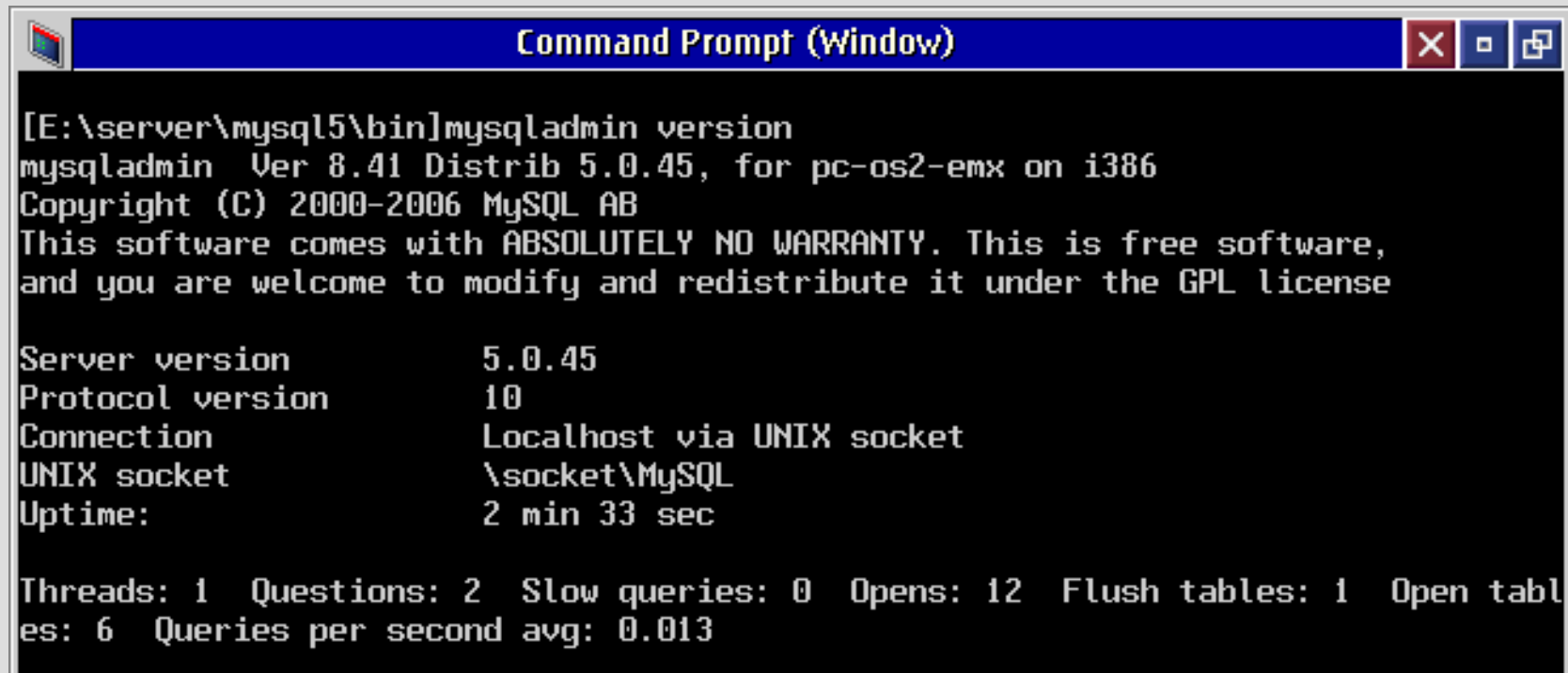
The screenshot shows two overlapping OS/2 terminal windows. The top window is titled 'Apache/2 2.2.4' and contains the text 'Apache/2.2.4 (OS/2) PHP/5.2.2'. The bottom window is titled 'MySQL 5.0 starten w/console' and displays the following output:

```
UNIX Socket is \socket\MySQL
070516 13:01:45 [Note] E:\server\mysql5\bin\mysqld.exe: ready for connections.
Version: '5.0.41' socket: '\socket\MySQL' port: 3306 Source distribution
```

# Installing an “OAMP” Server

## Testing of MySQL 5.0

- Open a second OS/2 window, go to the MySQL bin directory and enter the following commands:
  - Version info: `'mysqladmin version'`



```
Command Prompt (Window)
[E:\server\mysql5\bin]mysqladmin version
mysqladmin Ver 8.41 Distrib 5.0.45, for pc-os2-emx on i386
Copyright (C) 2000-2006 MySQL AB
This software comes with ABSOLUTELY NO WARRANTY. This is free software,
and you are welcome to modify and redistribute it under the GPL license

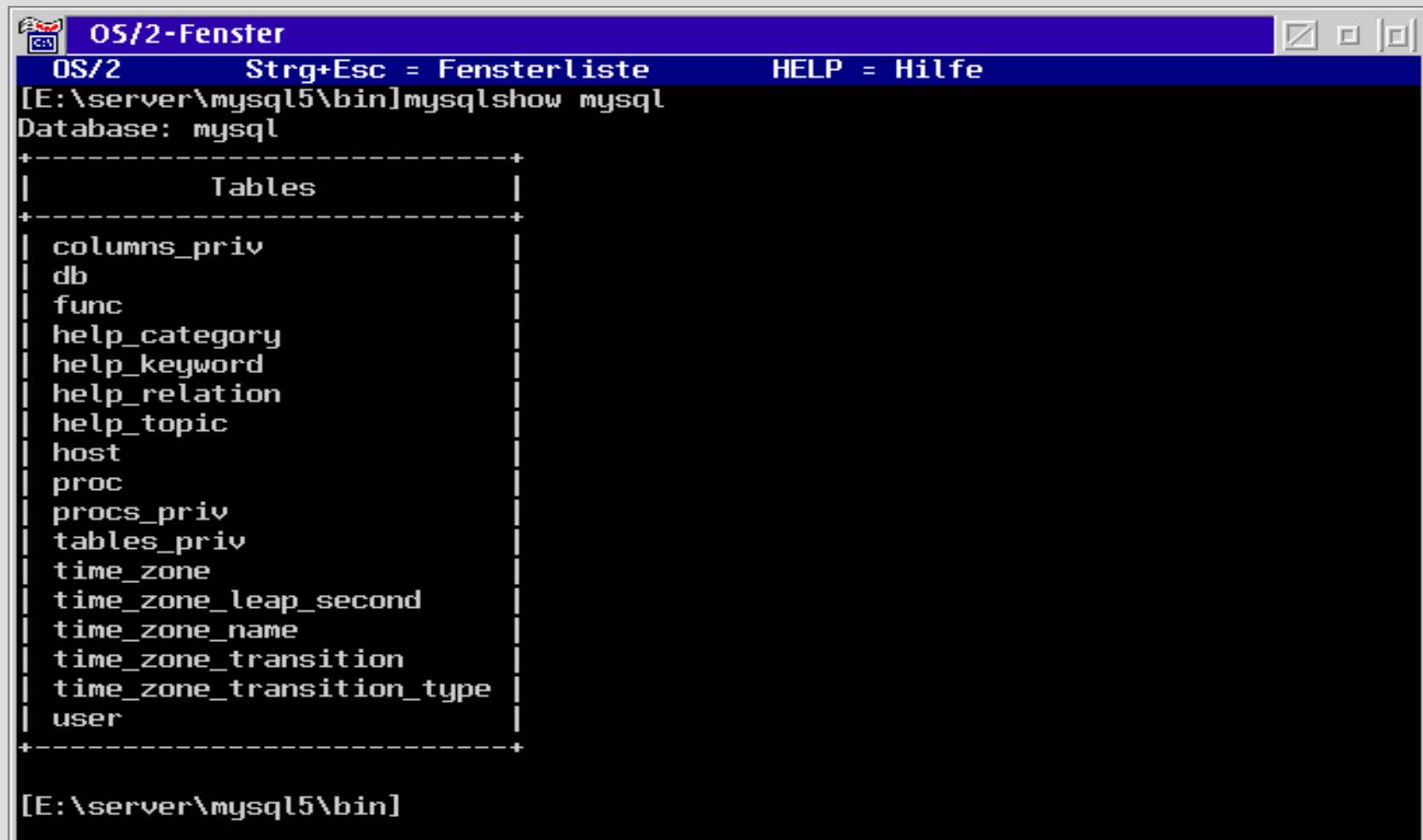
Server version          5.0.45
Protocol version        10
Connection              Localhost via UNIX socket
UNIX socket             \socket\MySQL
Uptime:                 2 min 33 sec

Threads: 1  Questions: 2  Slow queries: 0  Opens: 12  Flush tables: 1  Open tabl
es: 6  Queries per second avg: 0.013
```

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## Testing of MySQL 5.0

- Show the mysql database 'mysqlshow mysql':



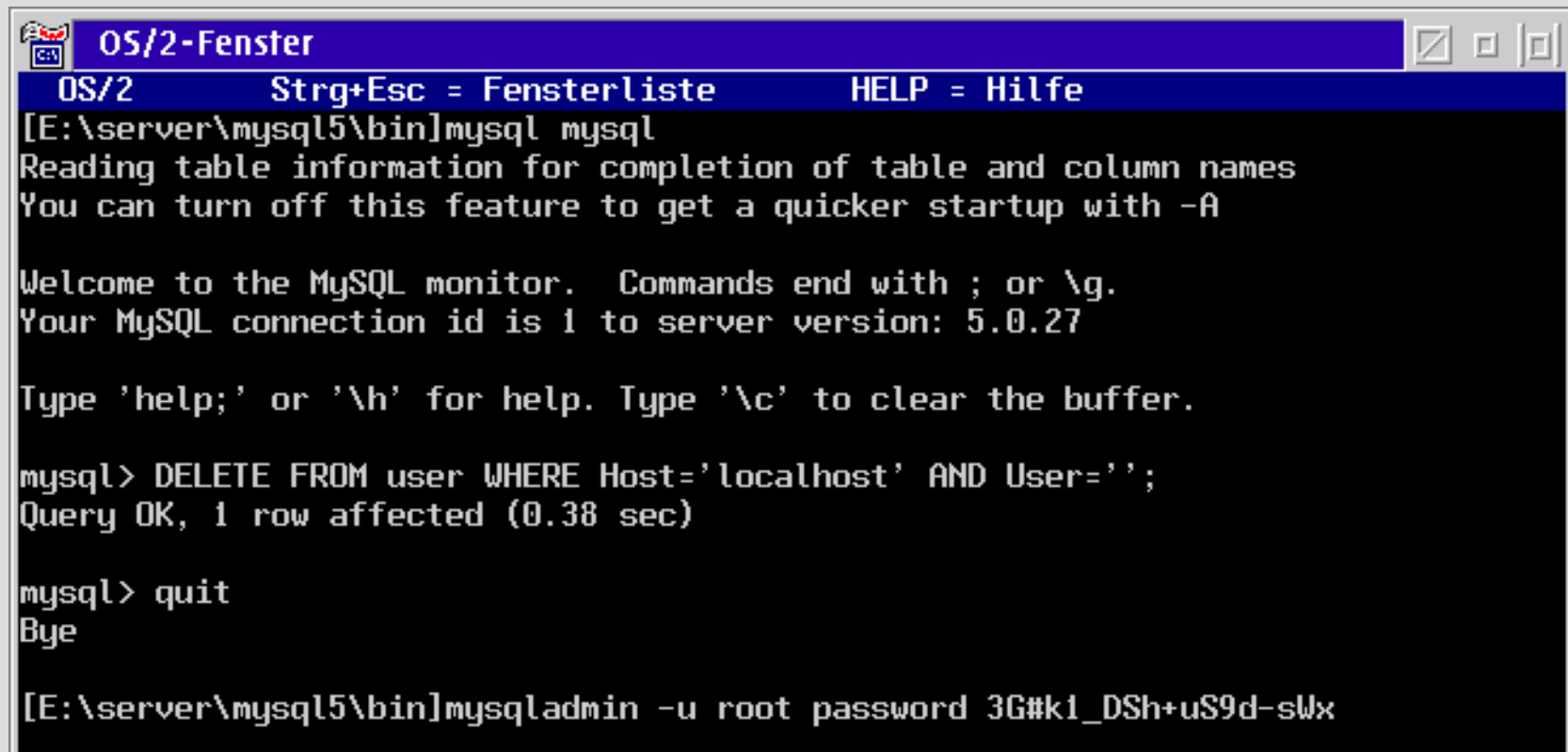
```
OS/2-Fenster
OS/2      Strg+Esc = Fensterliste      HELP = Hilfe
[E:\server\mysql5\bin]mysqlshow mysql
Database: mysql
+-----+
|          Tables          |
+-----+
| columns_priv            |
| db                      |
| func                   |
| help_category          |
| help_keyword           |
| help_relation          |
| help_topic             |
| host                   |
| proc                   |
| procs_priv             |
| tables_priv            |
| time_zone              |
| time_zone_leap_second  |
| time_zone_name         |
| time_zone_transition   |
| time_zone_transition_type |
| user                   |
+-----+
[E:\server\mysql5\bin]
```

# Installing an “OAMP” Server

## Testing of MySQL 5.0

- Set the new password for the MySQL server admin:

```
'mysqladmin -u root password verysecretpwd'
```



```
OS/2-Fenster
OS/2      Strg+Esc = Fensterliste      HELP = Hilfe
[E:\server\mysql5\bin]mysql mysql
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1 to server version: 5.0.27

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> DELETE FROM user WHERE Host='localhost' AND User='';
Query OK, 1 row affected (0.38 sec)

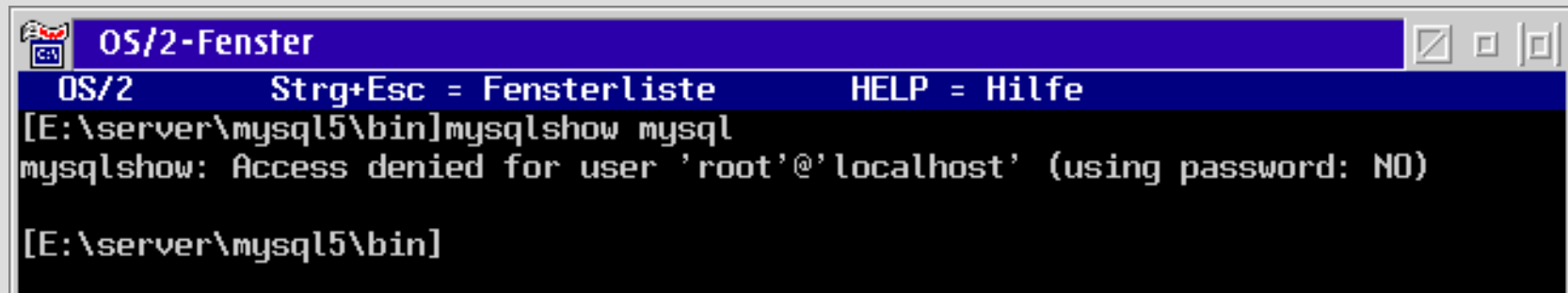
mysql> quit
Bye

[E:\server\mysql5\bin]mysqladmin -u root password 3G#k1_DSh+uS9d-sWx
```

# Installing an “OAMP” Server

## Testing of MySQL 5.0

- Check root access without password to the MySQL server again. With 'mysqlshow' you should now get:



```
OS/2-Fenster
OS/2      Strg+Esc = Fensterliste      HELP = Hilfe
[E:\server\mysql5\bin]mysqlshow mysql
mysqlshow: Access denied for user 'root'@'localhost' (using password: NO)

[E:\server\mysql5\bin]
```

Root access to your MySQL server is now password-protected. Do NOT use any password of these example for your server!

# Installing an “OAMP” Server

## Testing of MySQL 5.0

- Try some commands with user and password:

```
mysqladmin -u root  
--password=verysecretpwd version
```

```
mysqladmin -u root  
--password=verysecretpwd variables
```

```
mysqlshow -u root --password=verysecretpwd
```

```
mysqlshow -u root  
--password=verysecretpwd mysql
```

```
mysql -u root --password=verysecretpwd  
-e "select host,db,user from db" mysql
```

**The basic MySQL database server is running now!**

# Installing an “OAMP” Server

## Installation of phpMyAdmin 2.11

- Unzip the phpMyAdmin zip archive with:

```
unzip phpMyAdmin-2.11.1.2-all-languages.zip  
      -d phpMyAdmin-2.11.1.2
```

- Move the phpMyAdmin-2.11.1.2-all-languages directory to your apache data directory (e.g., E:\data\htdocs) and rename it to phpMyAdmin-2.11.1.2 .



# Installing an “OAMP” Server

## Configuration of phpMyAdmin 2.11

- Create a file 'config.inc.php' in the phpMyAdmin directory:

```
<?php      /* Servers configuration */
$i = 0;
$i++;      /* Server localhost (config:root) [ 1] */
$cfg[ 'Servers' ][ $i ][ 'host' ] = 'localhost';
$cfg[ 'Servers' ][ $i ][ 'extension' ] = 'mysql';
$cfg[ 'Servers' ][ $i ][ 'connect_type' ] = 'tcp';
$cfg[ 'Servers' ][ $i ][ 'compress' ] = false;
$cfg[ 'Servers' ][ $i ][ 'auth_type' ] = 'config';
$cfg[ 'Servers' ][ $i ][ 'user' ] = 'root';
$cfg[ 'Servers' ][ $i ][ 'password' ] = 'verysecretpwd';
?>        /* End of servers configuration */
```

# Installing an “OAMP” Server

## Configuration of phpMyAdmin 2.11

- Do NOT use this configuration in an environment outside of your private network! It's highly INSECURE, everybody can access your database without password!

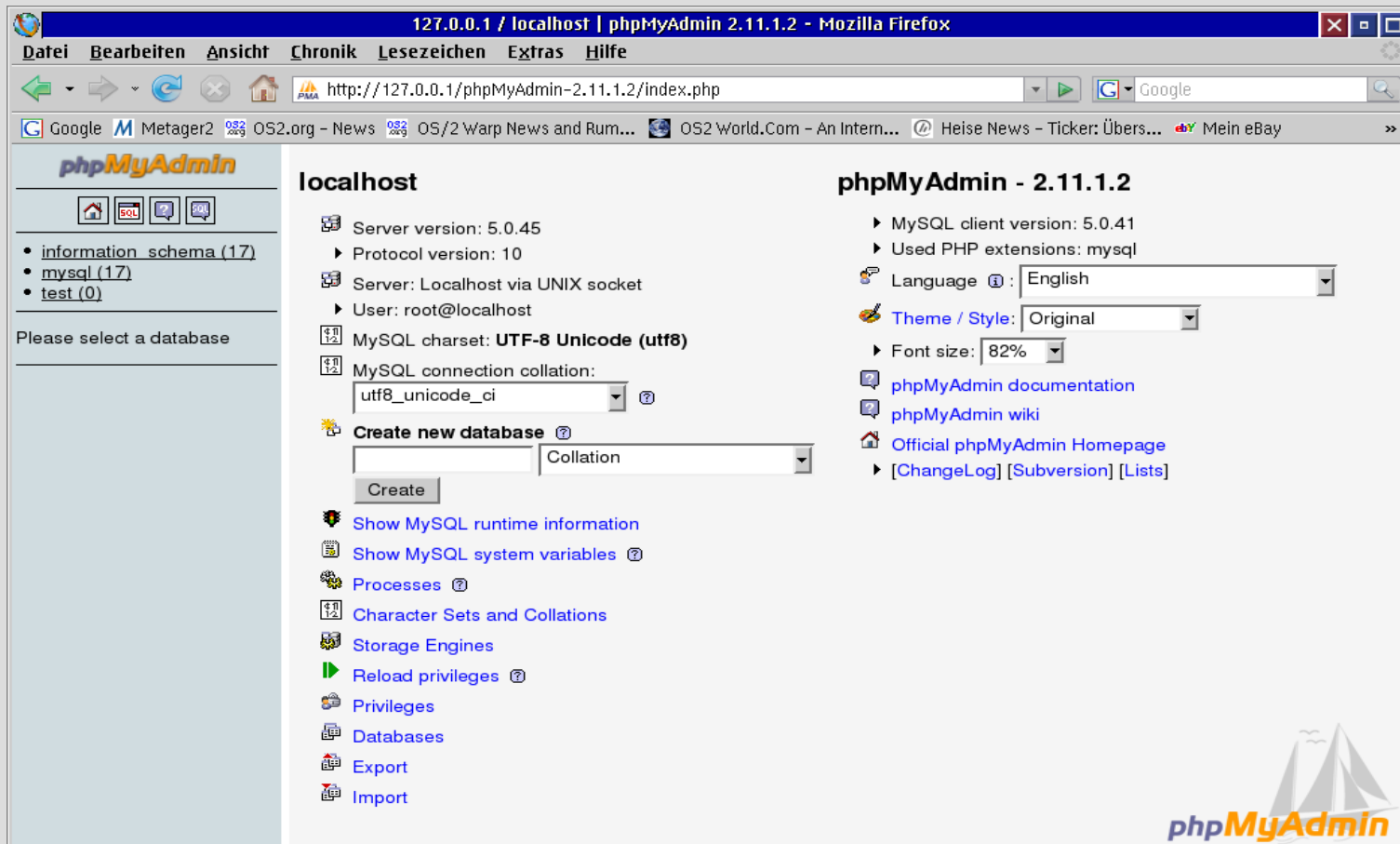
If you need some security, either use Apache's .htaccess to secure the phpMyAdmin directory or change 'config.inc.php' as follows:

```
$cfg[ 'Servers' ][ $i ][ 'auth_type' ] = 'http';  
$cfg[ 'Servers' ][ $i ][ 'user' ] = 'root';  
$cfg[ 'Servers' ][ $i ][ 'password' ] = '';
```

# Installing an “OAMP” Server

## Testing of phpMyAdmin 2.11

- Open your web browser, enter the IP address of your local machine. Point to the phpMyAdmin-2.11.1.2 dir. You get:



The screenshot shows the phpMyAdmin 2.11.1.2 web interface in Mozilla Firefox. The browser address bar shows the URL `http://127.0.0.1/phpMyAdmin-2.11.1.2/index.php`. The interface is divided into several sections:

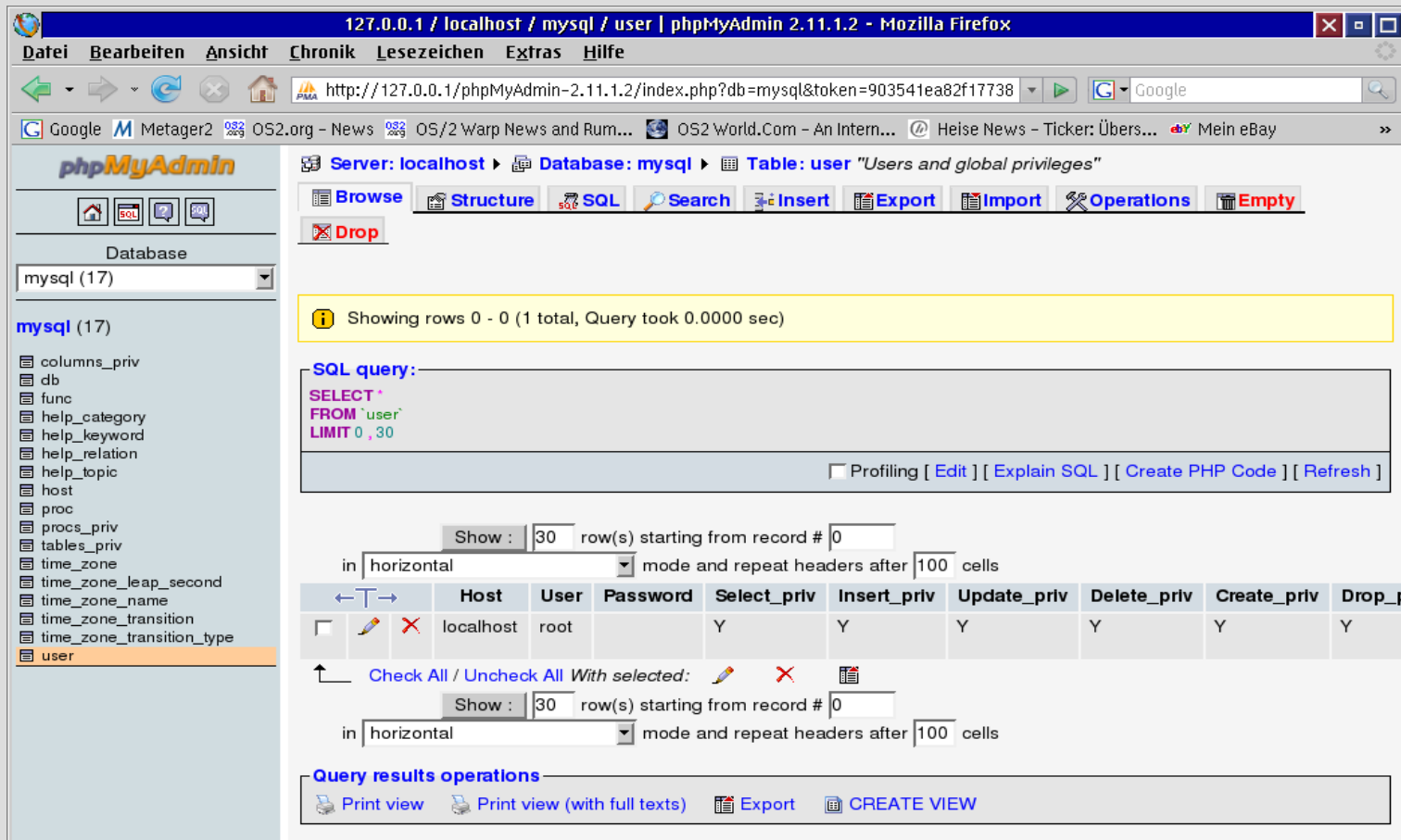
- Left sidebar:** Contains the phpMyAdmin logo, navigation icons, and a list of databases: `information_schema (17)`, `mysql (17)`, and `test (0)`. Below this is a prompt: "Please select a database".
- Top navigation:** Includes menu items like "Datei", "Bearbeiten", "Ansicht", "Chronik", "Lesezeichen", "Extras", and "Hilfe".
- Main content area:** Divided into two columns:
  - localhost:** Displays server information such as "Server version: 5.0.45", "Protocol version: 10", "Server: Localhost via UNIX socket", "User: root@localhost", "MySQL charset: UTF-8 Unicode (utf8)", and "MySQL connection collation: utf8\_unicode\_ci". It also features a "Create new database" form with a "Create" button and a list of utility links like "Show MySQL runtime information", "Processes", "Character Sets and Collations", "Storage Engines", "Reload privileges", "Privileges", "Databases", "Export", and "Import".
  - phpMyAdmin - 2.11.1.2:** Shows configuration details like "MySQL client version: 5.0.41" and "Used PHP extensions: mysql". It includes dropdown menus for "Language" (set to English) and "Theme / Style" (set to Original), along with a "Font size" dropdown (set to 82%). There are also links for "phpMyAdmin documentation", "phpMyAdmin wiki", and "Official phpMyAdmin Homepage", plus "[ChangeLog]", "[Subversion]", and "[Lists]".

The phpMyAdmin logo is visible in the bottom right corner of the interface.

# Installing an "OAMP" Server

## Testing of phpMyAdmin 2.11

- Select the mysql-db, then the user table, and select browse:



The screenshot shows the phpMyAdmin 2.11.1.2 interface in a Mozilla Firefox browser window. The address bar shows the URL: `http://127.0.0.1/phpMyAdmin-2.11.1.2/index.php?db=mysql&token=903541ea82f17738`. The browser title is "127.0.0.1 / localhost / mysql / user | phpMyAdmin 2.11.1.2 - Mozilla Firefox".

The interface displays the following information:

- Server: localhost
- Database: mysql
- Table: user "Users and global privileges"

The "Browse" tab is selected, showing the table structure and a "Drop" button. A yellow message box indicates: "Showing rows 0 - 0 (1 total, Query took 0.0000 sec)".

The SQL query entered is:

```
SELECT *
FROM 'user'
LIMIT 0, 30
```

Below the query, there are options for "Profiling", "Edit", "Explain SQL", "Create PHP Code", and "Refresh".

The table view shows 30 rows starting from record # 0. The table structure is as follows:

	Host	User	Password	Select_priv	Insert_priv	Update_priv	Delete_priv	Create_priv	Drop_priv
<input type="checkbox"/>	localhost	root		Y	Y	Y	Y	Y	Y

At the bottom, there are options for "Query results operations": "Print view", "Print view (with full texts)", "Export", and "CREATE VIEW".

Now you have a working OS/2-Apache-MySQL-PHP server!

# Installing an “OAMP” Server

## Conclusion

- The server is running on OS/2 now, some advantages are:
  - You don't need other systems than OS/2 on your servers just because you need a web server environment.
  - You can use your laptop running OS/2 for the development of web applications.
  - It's more secure by obscurity because nobody knows OS/2 and has the ability to hack the base OS!

# Installing an “OAMP” Server

## Conclusion

- There are disadvantages too:
  - Stability and performance is not tested on higher loads, so the server probably is only for small environments!
  - We have very few development and porting resources for the OS/2 versions, so the ports generally don't support OS/2-specific things and the OS/2 versions often are not on the same level as the Linux versions.

# Installing an “OAMP” Server

## Links

- Web sites:

<http://smedley.info/os2ports/>

<http://www.innotek.de/>

<ftp://ftp.netlabs.org/pub/gcc/>

<http://www.amp4ecs.de/>

<http://os4you.org/typo3goesos2de.html>

<http://httpd.apache.org/>

<http://www.mysql.org/>

<http://www.php.net/>

<http://www.phpmyadmin.net/>

# Installing an “OAMP” Server

## Links

- Mailing lists/Newsgroups:

<http://tech.dir.groups.yahoo.com/group/mysql-os2/>

- My documentation, prepared OAMP configuration:

[http://www.godacon.de/download/OAMP-Presentation\\_V09.p](http://www.godacon.de/download/OAMP-Presentation_V09.p)

[http://www.godacon.de/download/OAMP-HowTo\\_V07.pdf](http://www.godacon.de/download/OAMP-HowTo_V07.pdf)

[http://www.godacon.de/download/OAMP-Conf\\_V09.zip](http://www.godacon.de/download/OAMP-Conf_V09.zip)

...and much other OS/2 and Linux-related stuff!



# Installing an “OAMP” Server

## Credits

I would like to thank InnoTek and all others who worked on the InnoTek GCC for OS/2 project that enabled the OS/2 community to get a lot of great OpenSource Software running on OS/2 using their port of the GCC compiler.

And I would like to especially thank Paul Smedley who is investing a lot time into doing these ports that enabled me to install a web server based on mostly current OpenSource Software!

# Installing an “OAMP” Server

**Thanks**

**for your attention!**