

Installing an “OAMP” Server

HowTo for Installing an

“OAMP” Server

Based on IBM OS/2 Warp 4.5 (MCP),

Apache 2.2, MySQL 5.0 and PHP 5

(c) 2006 Thorolf.Godawa@GodaCon.de

05.11.2006, Version 0.7

Installing an “OAMP” Server

Preface

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

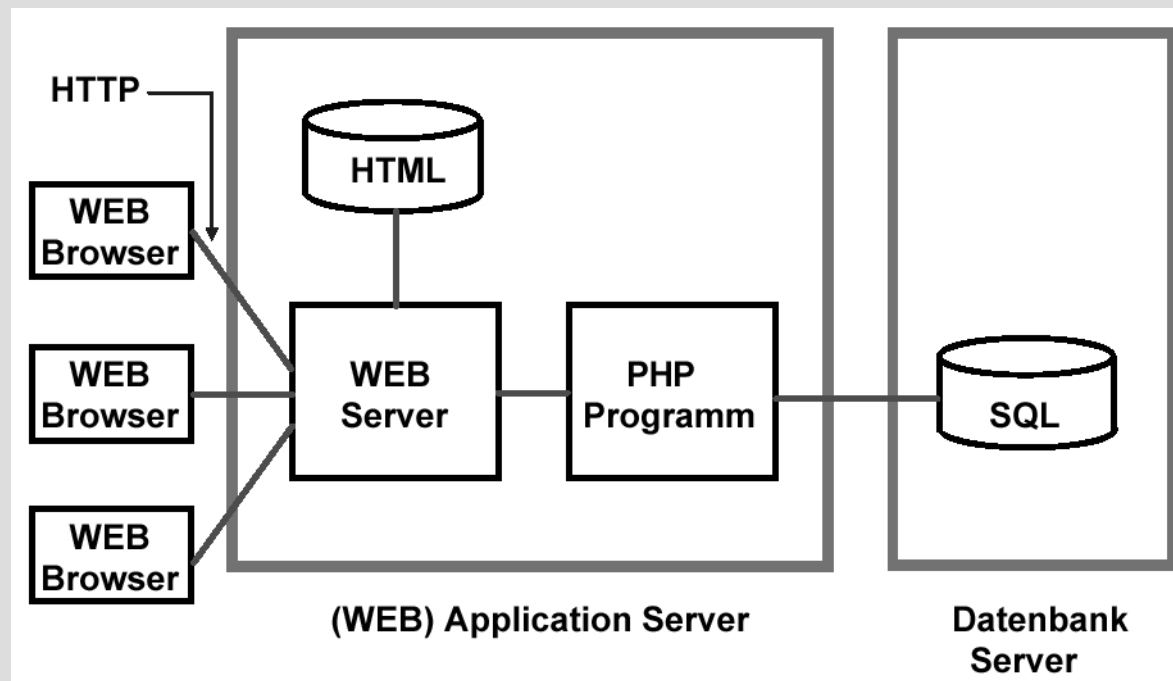
Introduction

- 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) with working TCP/IP
 - Copy GCC/LIBC DLLs from libc-0.6.1-csd1 to LIBPATH (e.g., D:\OS2\DLL):
 - gcc335.dll
 - libc06.dll
 - libc061.dll

Installing an “OAMP” Server

Overview

- Used software:
 - Download the following packages from <http://smedley.info/os2ports/>:
 - `httpd-2.2.3-os2-b3.zip`
 - `mysql-5.0.27-os2-b1.zip`
 - `php-5.2.0-os2-b1.zip`
 - Download phpMyAdmin from <http://www.phpmyadmin.net/>:
 - `phpMyAdmin-2.9.0.3-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-2.2.3-os2-b3.zip  
      -d httpd-2.2.3-os2-b3
```

- 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-std.conf to httpd.conf in conf directory.
- 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
```

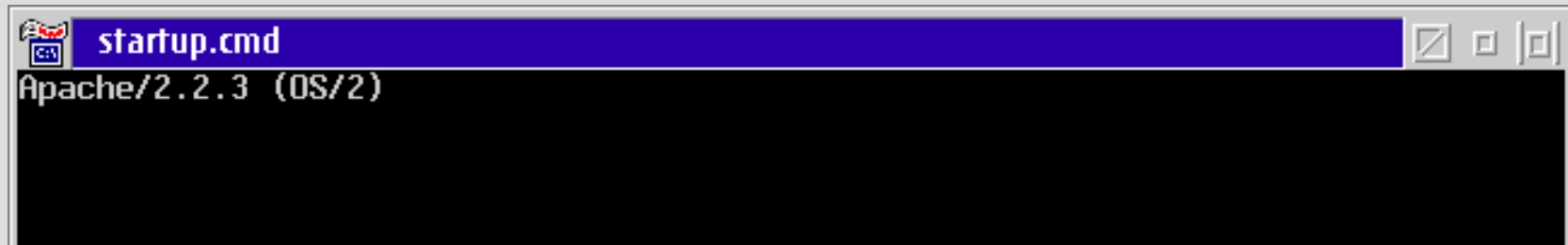
```
DocumentRoot "/data/htdocs"
```

```
<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!

Installing an “OAMP” Server

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-5.2.0-os2-b1.zip  
      -d php-5.2.0-os2-b1
```

- 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

Installation of PHP 5 for Apache 2.2

- FIX for PHP 5.1.5-os2-b1 (NOT needed for PHP 5.2.0):
 - Get modphp5fix.zip from <http://smedley.info/modphp5fix.zip>
 - Copy libc062x.dll to a directory in LIBPATH (e.g., D:\OS2\DLL).
 - Copy fixed modphp5.dll to your apache2 modules directory.

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=mysql.dll  
extension=openssl.dll  
extension=pgsql.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
```

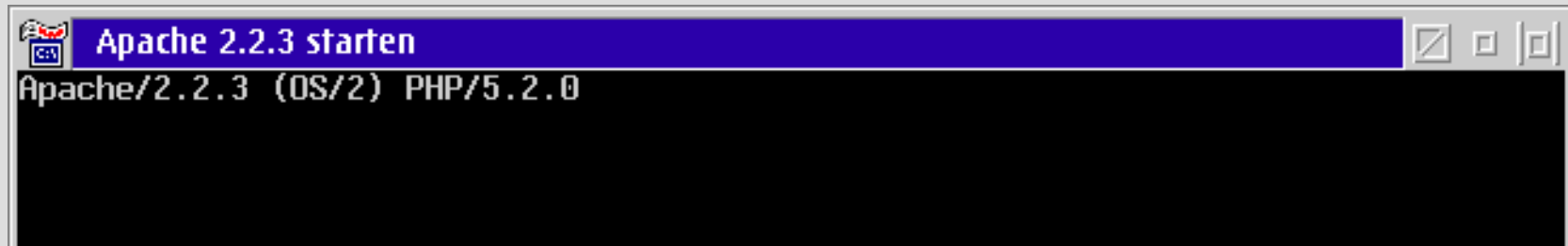
```
DirectoryIndex index.html index.htm  
                index.html.var index.php
```

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

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

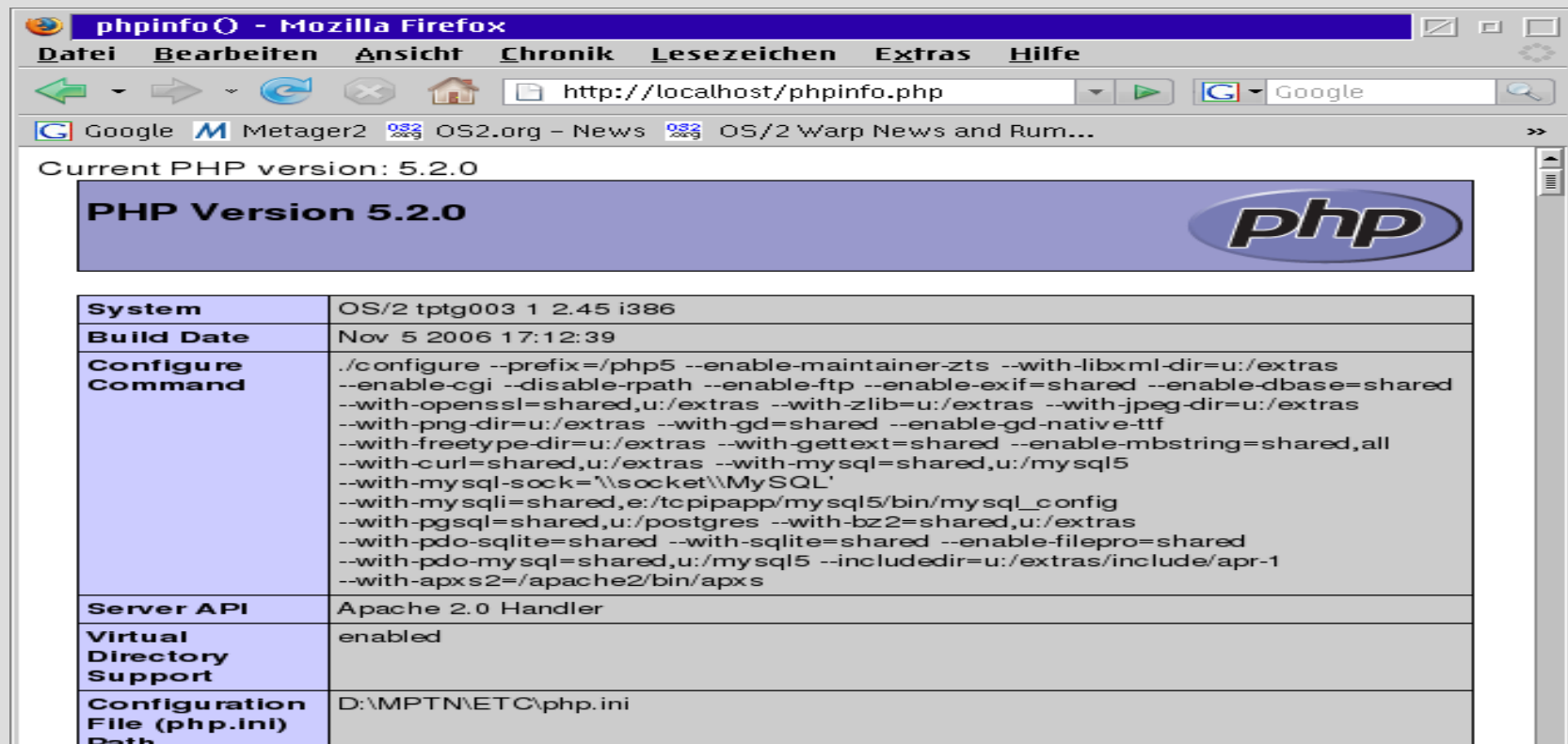
- Create a file phpinfo.php in your apache data directory (e.g., E:\data\htdocs):

```
<?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: 5.2.0

PHP Version 5.2.0 

System	OS/2 tptg003 1 2.45 i386
Build Date	Nov 5 2006 17:12:39
Configure Command	<code>./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,e:/tcpipapp/mysql5/bin/mysqli_config --with-pgsql=shared,u:/postgres --with-bz2=shared,u:/extras --with-pdo-sqlite=shared --with-sqlite=shared --enable-filepro=shared --with-pdo-mysql=shared,u:/mysql5 --includedir=u:/extras/include/apr-1 --with-apxs2=/apache2/bin/apxs</code>
Server API	Apache 2.0 Handler
Virtual Directory Support	enabled
Configuration File (php.ini) Path	D:\MPTN\ETC\php.ini

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-5.0.27-os2-b1.zip  
      -d mysql-5.0.27-os2-b1
```

- Move the mysql5 directory to your desired binary directory for MySQL5 (e.g., E:\server\mysql5).
- Copy the libc062x.dll from the mysql5 directory to a directory in LIBPATH (e.g., D:\OS2\DLL).
- 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

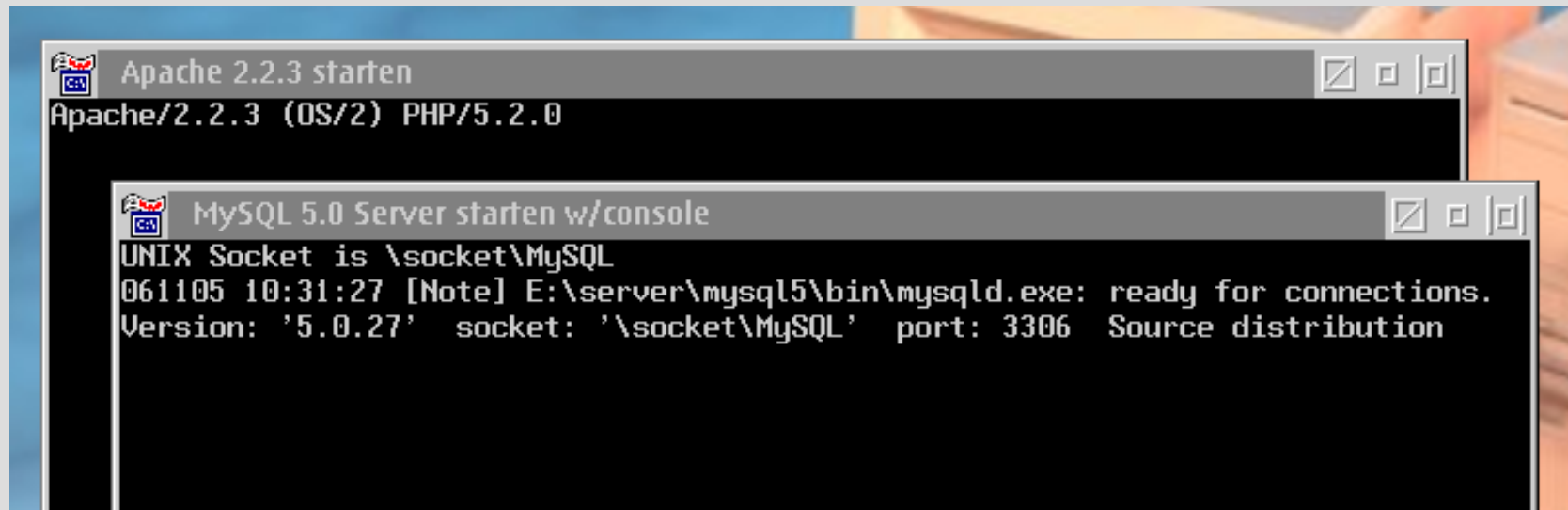
(e.g., D:\mptn\etc):

```
[client]
compress
user=root
[mysqld]
user=mysql
basedir=e:/server/mysql5
datadir=e:/data/mysql5/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:



```
Apache 2.2.3 starten
Apache/2.2.3 (OS/2) PHP/5.2.0

MySQL 5.0 Server starten w/console
UNIX Socket is \socket\MySQL
061105 10:31:27 [Note] E:\server\mysql5\bin\mysqld.exe: ready for connections.
Version: '5.0.27' 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'`



```
OS/2-Fenster
OS/2      Strg+Esc = Fensterliste      HELP = Hilfe
[E:\server\mysql5\bin]mysqladmin version
mysqladmin Ver 8.41 Distrib 5.0.27, for pc-os2-emx on i386
Copyright (C) 2000 MySQL AB & MySQL Finland AB & TCX DataKonsult 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

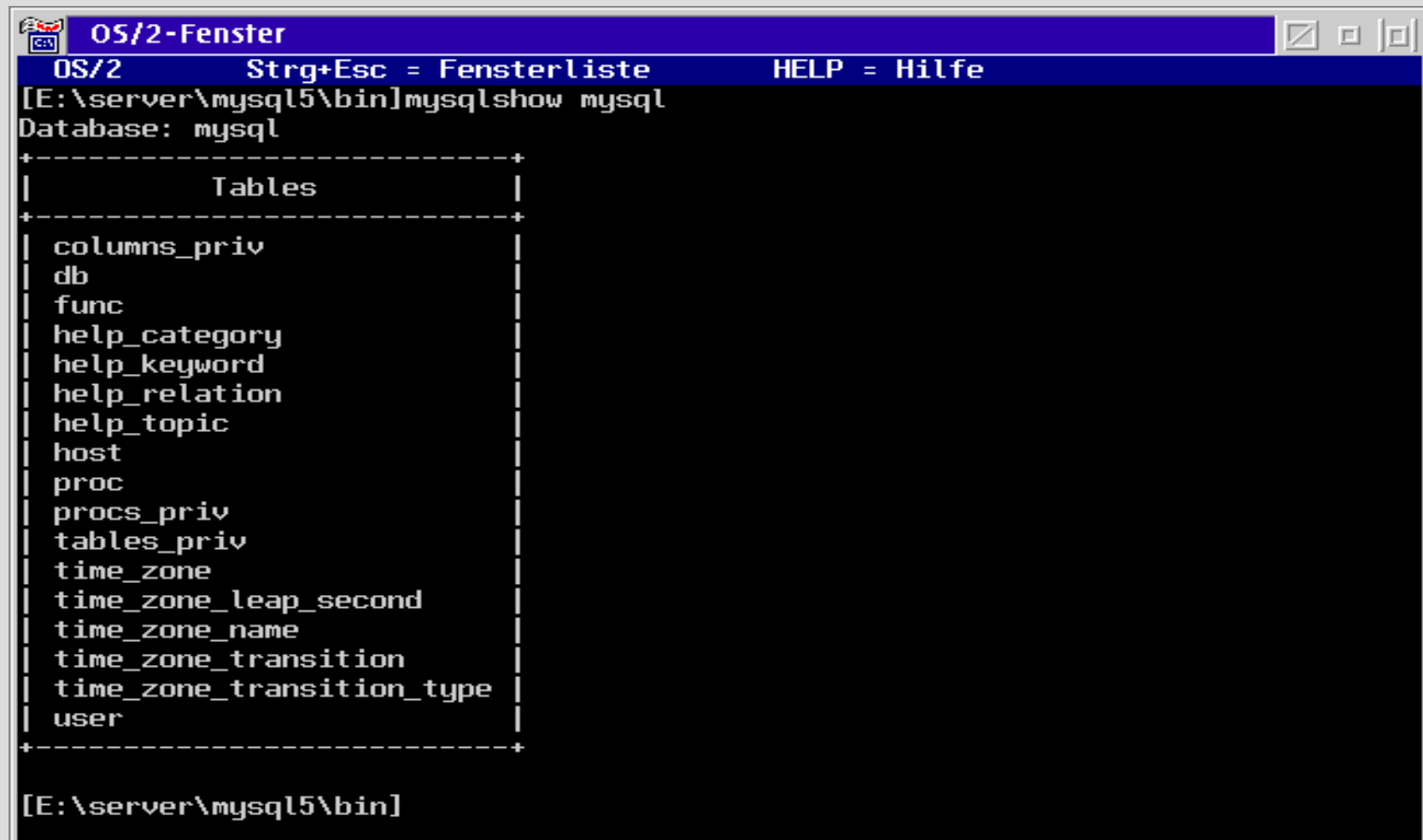
Server version          5.0.27
Protocol version        10
Connection              Localhost via UNIX socket
UNIX socket             \socket\MySQL
Uptime:                 14 min 53 sec

Threads: 1  Questions: 82  Slow queries: 0  Opens: 12  Flush tables: 1  Open tab
les: 6  Queries per second avg: 0.092
```

Installing an “OAMP” Server

Testing of MySQL 5.0

- Show the mysql database 'mysqlshow mysql':



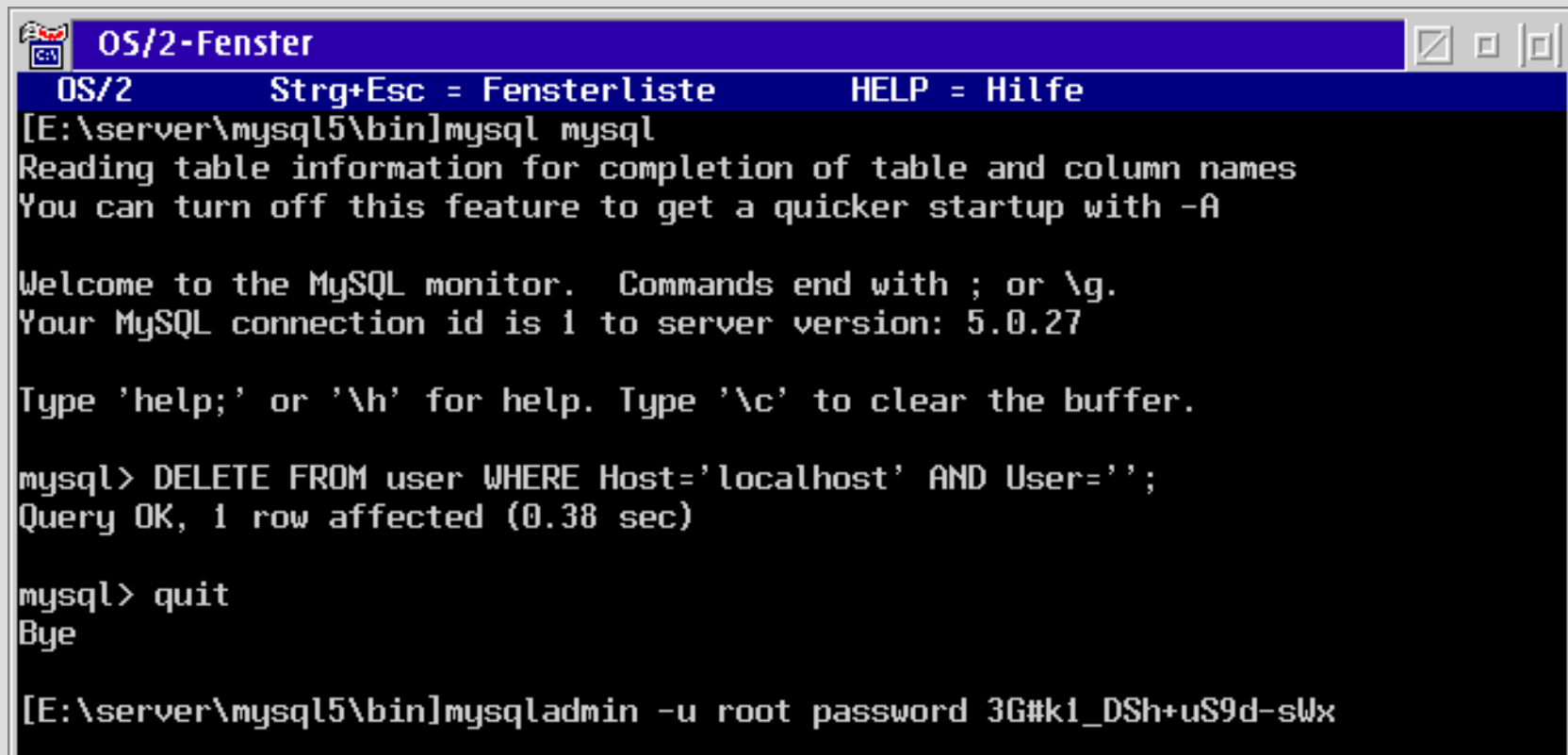
```
OS/2-Fenster
OS/2      Strg+Esc = Fensterliste      HELP = Hilfe
[E:\server\mysql5\bin]mysqlshow mysql
Database: mysql
+-----+
|          Tables          |
+-----+
| columns_priv            |
| db                      |
| func                   |
| help_category          |
| help_keyword           |
| 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)

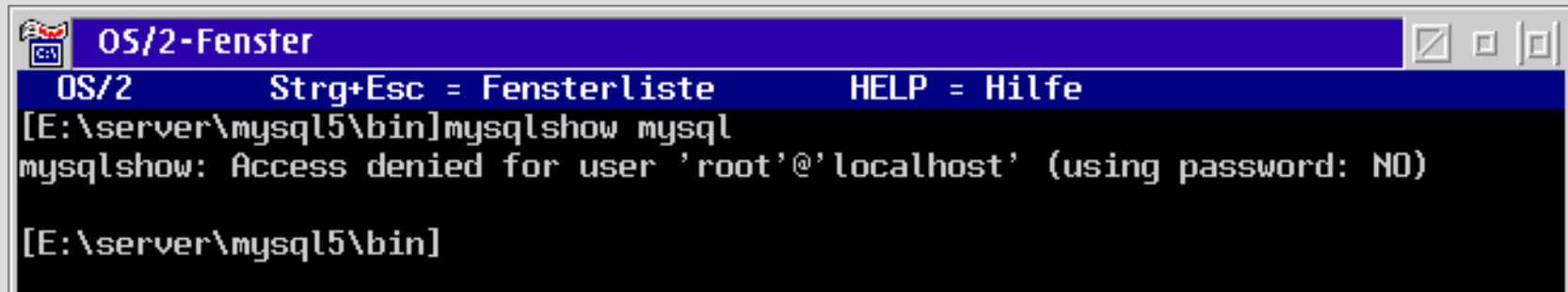
mysql> quit
Bye

[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 2.9

- Unzip the phpMyAdmin zip archive with:

```
unzip phpMyAdmin-2.9.0.3-all-languages.zip  
      -d phpMyAdmin-2.9.0.3
```

- Move the phpMyAdmin-2.9.0.3-all-languages directory to your apache data directory (e.g., E:\data\htdocs) and rename it to phpMyAdmin-2.9.0.3 .

Installing an “OAMP” Server

Configuration of phpMyAdmin 2.9

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

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

Installing an “OAMP” Server

Configuration of phpMyAdmin 2.9

- 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

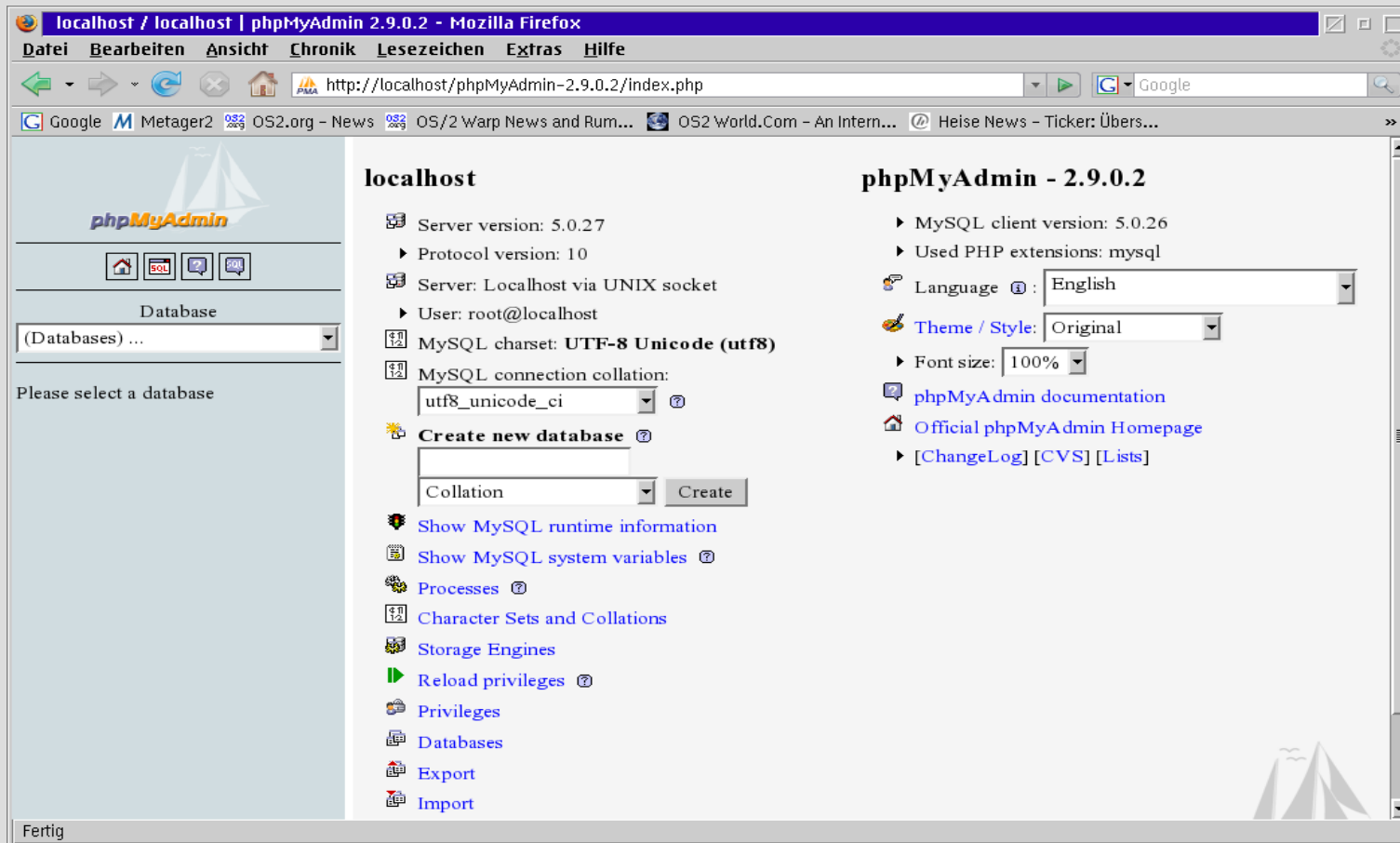
'config.inc.php' as follows:

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

Installing an “OAMP” Server

Configuration of phpMyAdmin 2.9

- Open your web browser, enter the IP address of your local machine. Point to the phpMyAdmin-2.9.0.3 dir. You get:



The screenshot shows the phpMyAdmin 2.9.0.2 web interface in Mozilla Firefox. The browser address bar shows the URL `http://localhost/phpMyAdmin-2.9.0.2/index.php`. The interface is divided into three main sections:

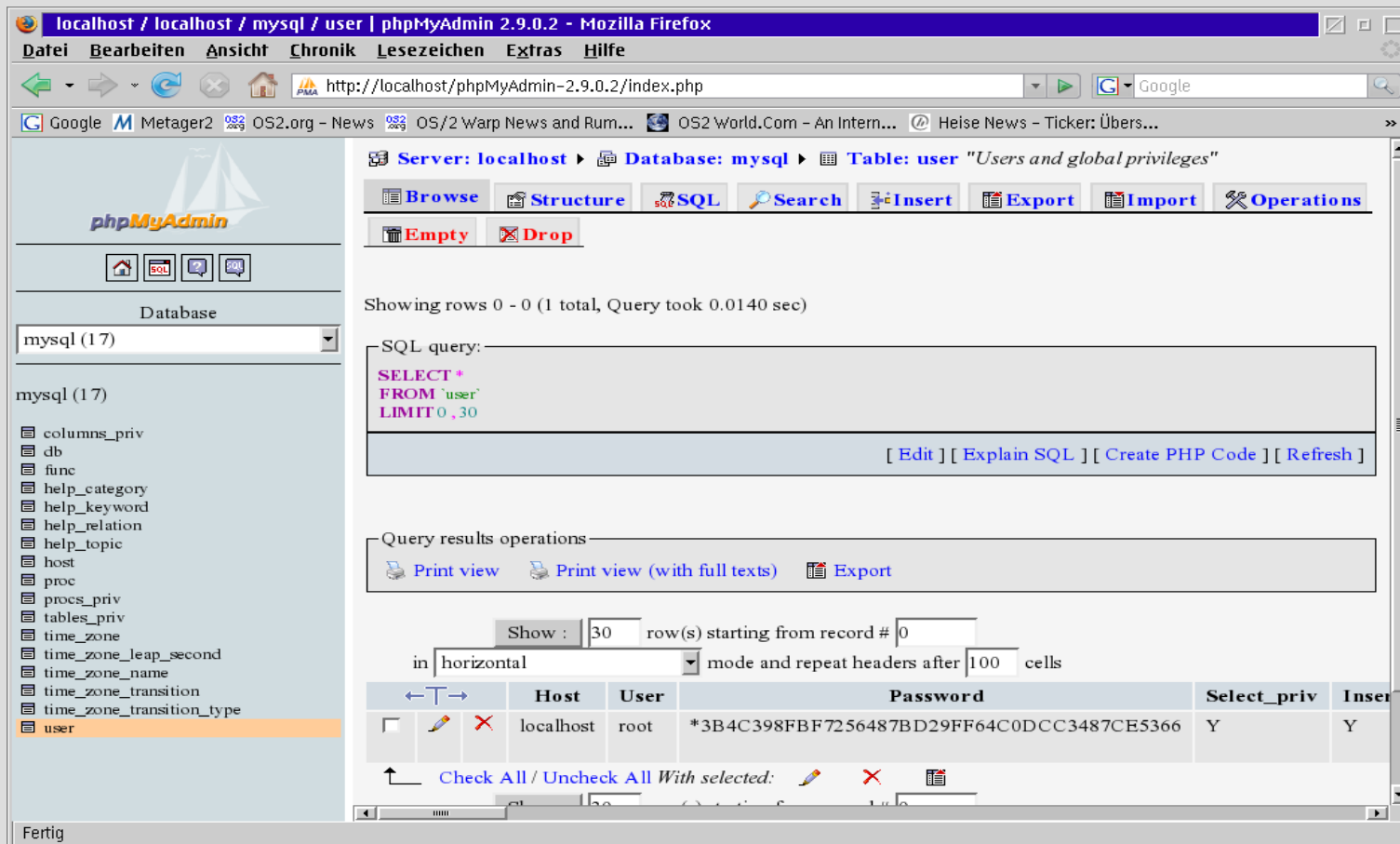
- Left Panel:** Contains the phpMyAdmin logo, navigation icons (Home, SQL, Help, Logout), a "Database" dropdown menu with "(Databases) ..." selected, and the text "Please select a database".
- Center Panel:** Displays server information for "localhost":
 - Server version: 5.0.27
 - Protocol version: 10
 - Server: Localhost via UNIX socket
 - User: root@localhost
 - MySQL charset: UTF-8 Unicode (utf8)
 - MySQL connection collation: utf8_unicode_ciBelow this is a "Create new database" section with a text input field, a "Collation" dropdown, and a "Create" button. A list of links follows:
 - Show MySQL runtime information
 - Show MySQL system variables
 - Processes
 - Character Sets and Collations
 - Storage Engines
 - Reload privileges
 - Privileges
 - Databases
 - Export
 - Import
- Right Panel:** Displays client and configuration information for "phpMyAdmin - 2.9.0.2":
 - MySQL client version: 5.0.26
 - Used PHP extensions: mysql
 - Language: English (dropdown)
 - Theme / Style: Original (dropdown)
 - Font size: 100% (dropdown)
 - Links: phpMyAdmin documentation, Official phpMyAdmin Homepage, [ChangeLog] [CVS] [Lists]

The status bar at the bottom left shows "Fertig".

Installing an "OAMP" Server

Configuration of phpMyAdmin 2.9

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



The screenshot shows the phpMyAdmin 2.9.0.2 interface in a Mozilla Firefox browser window. The browser address bar shows the URL `http://localhost/phpMyAdmin-2.9.0.2/index.php`. The interface displays the following information:

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

The interface includes a navigation menu with options: Browse, Structure, SQL, Search, Insert, Export, Import, and Operations. Below the navigation menu, there are buttons for Empty and Drop. The main content area shows the following text:

Showing rows 0 - 0 (1 total, Query took 0.0140 sec)

SQL query:

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

Below the SQL query, there are links for [Edit], [Explain SQL], [Create PHP Code], and [Refresh].

Query results operations:

- Print view
- Print view (with full texts)
- Export

The results are displayed in a table with the following columns: Host, User, Password, Select_priv, and Insert_priv. The table shows one row of data:

Host	User	Password	Select_priv	Insert_priv
localhost	root	*3B4C398FBF7256487BD29FF64C0DCC3487CE5366	Y	Y

At the bottom of the table, there are links for Check All / Uncheck All and a With selected: section.

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/products.html>

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

<http://www.ampos2.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 package:

http://www.godacon.de/download/OAMP-Pres_V07.zip

http://www.godacon.de/download/OAMP-HowTo_V07.zip

http://www.godacon.de/download/OAMP-Pack_V07.zip

http://www.godacon.de/download/OAMP-Conf_V07.zip

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

Installing an “OAMP” Server

Thanks
for your attention!