

安装 httpd+php+mysql

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在 PCduino 上安装 httpd+php+mysql 环境。

实现目的

熟悉树莓派在 linux 下软件的安装；
掌握 httpd、php、mysql 的安装与配置。

实验器材

硬件

pcduino v2 板一块；
5V/1A 电源一个；
microUSB 线一根；
USB-TTL 串口线一根（FT232RL 芯片或 PL2303 芯片）。

以下为自备（可选）器材：

PC（Windows/Mac OS/Linux）一台；
以太网线一根（可能还需要路由器等）。

软件

PC 上的 USB-TTL 串口线配套的驱动程序；
PC 上的串口终端软件，如 minicom、picocom、putty 等；
PC 上的 SSH 软件，如 putty 等。

实验步骤

在 pcduino 上安装并配置 apache；
验证 apache 已经安装并能成功访问；
在 pcduino 上安装并配置 php；
写一个 php 脚本验证 php 已经安装成功；

在 pcDuino 上安装并配置 mysql;

写一个 php 脚本访问 mysql, 验证 mysql 安装成功。

实验过程与结果分析

本次实验主要使用 apt-get 命令来安装对应服务, 方便快捷。

1. 升级 apt-get 源。sudo apt-get update

```
pi@raspberrypi ~ $ sudo apt-get update
Hit http://raspberrypi.collabora.com wheezy Release.gpg
Hit http://raspberrypi.collabora.com wheezy Release
Hit http://raspberrypi.collabora.com wheezy/rpi armhf Packages
Hit http://mirrordirector.raspbian.org wheezy Release.gpg
Hit http://mirrordirector.raspbian.org wheezy Release
Hit http://mirrordirector.raspbian.org wheezy/main armhf Packages
Hit http://mirrordirector.raspbian.org wheezy/contrib armhf Packages
Hit http://mirrordirector.raspbian.org wheezy/non-free armhf Packages
Hit http://mirrordirector.raspbian.org wheezy/rpi armhf Packages
Ign http://raspberrypi.collabora.com wheezy/rpi Translation-en_GB
Ign http://raspberrypi.collabora.com wheezy/rpi Translation-en
Ign http://mirrordirector.raspbian.org wheezy/contrib Translation-en_GB
Ign http://mirrordirector.raspbian.org wheezy/contrib Translation-en
Ign http://mirrordirector.raspbian.org wheezy/main Translation-en_GB
```

2. 安装 apache2, 使用命令 apt-get install apache2

安装过程截图:

```
pi@raspberrypi ~ $ sudo apt-get install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  apache2-mpm-worker apache2-utils apache2.2-bin apache2.2-common libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap ssl-cert
Suggested packages:
  apache2-doc apache2-suexec apache2-suexec-custom openssl-blacklist
The following NEW packages will be installed:
  apache2 apache2-mpm-worker apache2-utils apache2.2-bin apache2.2-common libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 23 not upgraded.
Need to get 1,360 kB of archives.
After this operation, 4,936 kB of additional disk space will be used.
Do you want to continue [Y/n]? Y
```

树莓派的 ip 地址是 192.168.3.2

打开浏览器, 访问 <http://192.168.3.2/>, 结果如下, 显示 It works! 这是 apache2 的默认页面, 证明 apache 安装成功。



3. 安装 php。

使用命令 `sudo apt-get install php5`

```
pi@raspberrypi ~ $ sudo apt-get install php5
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  apache2-mpm-prefork libapache2-mod-php5 libonig2 libqdbm14 lsof php5-cli php5-common
Suggested packages:
  php-pear
The following packages will be REMOVED:
  apache2-mpm-worker
The following NEW packages will be installed:
  apache2-mpm-prefork libapache2-mod-php5 libonig2 libqdbm14 lsof php5 php5-cli php5-common
0 upgraded, 8 newly installed, 1 to remove and 23 not upgraded.
Need to get 6,136 kB of archives.
After this operation, 17.5 MB of additional disk space will be used.
Do you want to continue [Y/n]? Y
0% [Waiting for headers]
```

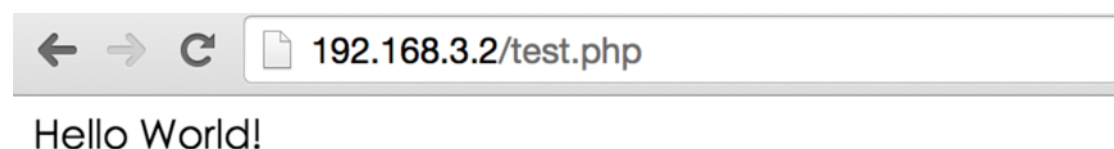
重启 Apache 服务，开启 php，`sudo /etc/init.d/apache2 restart`

接下来测试 php 是否正确安装，apache2 的默认主目录是 `/var/www/`

`sudo vi /var/www/testphp.php` 写入一小段 php 脚本

```
<!DOCTYPE html>
<html>
<body>
<?php
echo "Hello World!";
?>
</body>
</html>
```

打开浏览器，访问 `http://192.168.3.2/test.php`



结果如图所示，证明 php 安装成功。

4. 安装 mysql

使用命令 `sudo apt-get install mysql-server`

```

pi@raspberrypi ~ $ sudo apt-get install mysql-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  heirloom-mailx libaio1 libdbd-mysql-perl libdbi-perl libhtml-template-perl libmysqlclient16 mysql-client-5.5 mysql-server-5.5 mysql-server-core-5.5
Suggested packages:
  exim4 mail-transport-agent libipc-sharedcache-perl libterm-readkey-perl tinyca
Recommended packages:
  mailx
The following NEW packages will be installed:
  heirloom-mailx libaio1 libdbd-mysql-perl libdbi-perl libhtml-template-perl libmysqlclient16 mysql-client-5.5 mysql-server mysql-server-5.5 mysql-server-core-5.5
0 upgraded, 10 newly installed, 0 to remove and 23 not upgraded.
Need to get 9,880 kB of archives.
After this operation, 90.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y

```

使用命令 `sudo apt-get install libapache2-mod-auth-mysql`, 安装 apache 的 MySQL 模块。

```

pi@raspberrypi ~ $ sudo apt-get install libapache2-mod-auth-mysql
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  libmysqlclient18 mysql-common
The following NEW packages will be installed:
  libapache2-mod-auth-mysql libmysqlclient18 mysql-common
0 upgraded, 3 newly installed, 0 to remove and 23 not upgraded.
Need to get 726 kB of archives.

```

在使用 `sudo apt-get install php5-mysql`, 安装 php 的 mysql 模块。

```

pi@raspberrypi ~ $ sudo apt-get install php5-mysql
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  php5-mysql
0 upgraded, 1 newly installed, 0 to remove and 23 not upgraded.
Need to get 69.2 kB of archives.
After this operation, 220 kB of additional disk space will be used.

```

重启 apache 服务。

现在 mysql 已安装完成, 下面写一个 php 脚本来测试 mysql。

直接打开 mysql 创建一个数据库 `my_db`, 并且创建表 `Person` 并插入一条数据。

之后 `vi /var/www/test.php`, 脚本如下:

```

<!DOCTYPE html>
<html>
<body>

<?php
$con = mysql_connect("localhost","root","root");
if (!$con){

```

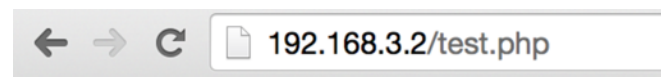
```
die('Could not connect: ' . mysql_error());
}
mysql_select_db("my_db", $con);
$result = mysql_query("SELECT * FROM Person");

while($row = mysql_fetch_array($result))
{
    echo "ID: " . $row['id'] . ",AGE: " . $row['Age'];
    echo "<br />";
}

mysql_close($con);
?>

</body>
</html>
```

打开浏览器访问：<http://192.168.3.2/test.php>



ID: 1234,AGE: 20

成功查询表并返回结果，结果符合预期，证明 **mysql** 成功安装。

感想

这是第一次嵌入式实验。这次实验复习了一下 **apache+mysql+php** 的经典架构的安装和测试，并没有做特别的优化处理。初步体会了嵌入式设备的方便，可以十分迅速的建立起一个 **php** 服务器，而且便携。