Installing PHP5 with Apache 2

This document describes how to install the version of the PHP general-purpose scripting language that is located on the class website, version 5.4.5. You may obtain this version either by clicking here or by going to the class web page and clicking on Download Course Software. If you choose to use this version of PHP, you may follow the detailed instructions below. Otherwise you may download another version from the PHP web site, but in that case you will have to follow the installation instructions included with the software. If you need assistance you should read the documentation that comes with the PHP package or go to the online documentation at http://www.php.net/manual/en/.

The following procedure describes how to build and install the PHP 5.4.5 binary loadable module for Apache 2. Once again, this procedure works ONLY FOR the version of PHP located on the course web site, namely 5.4.5.

Please run your server on cs-server.usc.edu; DO NOT run your server on nunki.usc.edu or aludra.usc.edu, otherwise, your account will be suspended.

Download and Unpack PHP 5 Package

Step 1: Download the 5.4.5 source version of the PHP language from the class website by clicking here or go to the course home page and click on Download Course Software. Upload the file to your class user account home directory.

Assume your user account home directory is **/home/scf-22/myname/**, and you want to unpack the apache files there.

Step 2: unpack the tar package by running "tar xvf php-5.4.5.tar"

Step 3: after several minutes, a directory tree **/home/scf-22/myname/php-5.4.5** will be created.

Step 4: you should delete php-5.4.5.tar which is no longer needed by running "rm php-5.4.5.tar"

Install PHP 5.4.5 Binary Loadable Module

Connect to the PHP source distribution directory just created and do a "pwd" command to get the full path to the PHP directory, as in:

```
cs-server.usc.edu(2): cd php-5.4.5
cs-server.usc.edu(3): pwd
/home/scf-22/csci571b/php-5.4.5
cs-server.usc.edu(4):
```

Part 1: Source creation and configuration.

Then type the following command to create the source files and configure them to your "hardware" environment:

```
./configure --with-apxs2=/absolute/path/to/apache/directory/bin/apxs --prefix=/absolute/path/to/php5/directory --with-openssl --without-pear --disable-phar
```

Note: The directory **/absolute/path/to/php5/directory/** SHOULD BE a **new** directory, e.g. /home/scf-22/myname/**php5**, so that you can erase the distribution directory /home/scf-22/myname/php-5.4.5 at the end of this installation process. Therefore, we strongly recommend that you use a **new directory** for this installation.

Note: The directory **/absolute/path/to/apache/directory/** SHOULD BE the directory where you have installed Apache 2, e.g. /home/scf-22/myname/**apache2**, as described in the Apache 2 installation.

During installation, which could last as long as 10 minutes, you will see hundreds of output lines. Many will look like **checking for _name_ yes/no**. At the beginning and end of the source code creation, you should see output like the one below (most of the "checking" and "creating" lines have been omitted):

```
cs-server.usc.edu(5): ./configure --with-apxs2=/home/scf-22/csci571b/apache2/bin/apxs --prefix=/home/scf-22/csci571b/php5 --with-openssl  --without-pear --disable-phar
checking for ...

Generating files
configure: creating ./config.status
creating main/internal_functions.c
creating main/internal_functions_cli.c
+--------------------------------------------------------------------+
| License:                                                           |
| This software is subject to the PHP License, available in this     |
| distribution in the file LICENSE.  By continuing this installation |
| process, you are bound by the terms of this license agreement.     |
| If you do not agree with the terms of this license, you must abort |
| the installation process at this point.                            |
+--------------------------------------------------------------------+

Thank you for using PHP.

config.status: creating php5.spec
config.status: creating main/build-defs.h
config.status: creating scripts/phpize
config.status: creating scripts/man1/phpize.1
config.status: creating scripts/php-config
```

```
      config.status: creating scripts/man1/php-config.1
      config.status: creating sapi/cli/php.1
      config.status: creating main/php_config.h
      config.status: executing default commands
      cs-server.usc.edu(6):
```

Part 2: Source compilation and linking.

Do **not** change directory. Then type the following command to compile all source files and create (i.e. "make" in UNIX lingo) the **PHP5** binary loadable module:

```
make
```

The compilation will **take a long time** (as long a 20 minutes).

Part 3: Library Linking and installation.

Once compilation is finished, you can install the **PHP5** binary loadable module using:

```
make install
```

This phase will last about 3 minutes. You should see output like the one below:

```
      cs-server.usc.edu(7): make install
      Installing PHP SAPI module:       apache2handler
      /home/scf-22/csci571b/apache2/build/instdso.sh SH_LIBTOOL='/home/scf-22/
csci571b/apache2/build/libtool' libphp5.la /home/scf-22/csci571b/apache2/modules
      /home/scf-22/csci571b/apache2/build/libtool --mode=install cp libphp5.la /
home/scf-22/csci571b/apache2/modules/
      cp .libs/libphp5.so /home/scf-22/csci571b/apache2/modules/libphp5.so
      chmod +x /home/scf-22/csci571b/apache2/modules/libphp5.so
      cp .libs/libphp5.lai /home/scf-22/csci571b/apache2/modules/libphp5.la
      libtool: install: warning: remember to run `libtool --finish /home/scf-22/
csci571b/php-5.4.5/libs'
      chmod 755 /home/scf-22/csci571b/apache2/modules/libphp5.so
      [activating module `php5' in /home/scf-22/csci571b/apache2/conf/httpd.conf]
      Installing PHP CLI binary:        /home/scf-22/csci571b/php5/bin/
      Installing PHP CLI man page:      /home/scf-22/csci571b/php5/php/man/man1/
      Installing PHP CGI binary:        /home/scf-22/csci571b/php5/bin/
      Installing build environment:     /home/scf-22/csci571b/php5/lib/php/build/
      Installing header files:          /home/scf-22/csci571b/php5/include/php/
      Installing helper programs:       /home/scf-22/csci571b/php5/bin/
        program: phpize
        program: php-config
      Installing man pages:             /home/scf-22/csci571b/php5/php/man/man1/
        page: phpize.1
        page: php-config.1
      Installing PDO headers:          /home/scf-22/csci571b/php5/include/php/ext/
pdo/
      cs-server.usc.edu(8):
```

If all went well, you should see the PHP binary loadable module, **libphp5.so**, in the Apache 2 modules directory, **/absolute/path/to/apache/directory**/modules, e.g., /home/scf-22/myname/**apache2/modules**.

If you have reached this point successfully, you are now ready to customize Apache to

use your PHP module. Congratulations!

Configure/Customize PHP and Apache

Part 1: Copy php.ini

PHP uses one configuration file, named **PHP.ini**. We will need to copy this file from the source distribution.

Assuming you have followed the instructions above, the PHP.INI sample files are contained in the folder **/home/scf-22/myname/php-5.4.5**. One of these sample INI files, **php.ini-development**, needs to be copied to your PHP "library" directory, e.g., /home/scf-22/csci571b/**php5/lib/php.ini**, and renamed **php.ini**. Change to that directory and copy the file:

```
cs-server.usc.edu(8): cd /home/scf-22/csci571b/php-5.4.5
cs-server.usc.edu(9): cp php.ini-development /home/scf-22/csci571b/php5/lib/
php.ini
```

Part 2: Edit Apache main configuration file, httpd.conf

Apache 2 uses several configuration files. We will need to change one (1) of these configuration files before starting the Apache 2 web server with the PHP loadable module.

Assuming you have followed the instructions in the Apache 2 Installation, the Apache configuration files are contained in the folder **/home/scf-22/myname/apache2/conf** and its subfolders. Change to that directory:

```
cs-server.usc.edu(9): cd /home/scf-22/csci571b/apache2/conf
```

Open the file **httpd.conf** using a text editor. First, ensure that **make install** added a line to load the PHP module. The path on the right-hand side of the LoadModule statement must point to the path of the PHP module. Be sure to check that it looks like this:

```
LoadModule php5_module modules/libphp5.so
```

If the above line is not there, add it in.

Now add the following lines at the end of the file:

```
<FilesMatch "\.ph(p[2-6]?|tml)$">
    SetHandler application/x-httpd-php
</FilesMatch>
```

Do not forget to enter a new empty line, after the above.

You have now completed all the steps to configure, create, install and customize the PHP 5 loadable module for Apache 2. **Congratulations!**

Stopping and Restarting Apache with PHP

Students MUST run their server on cs-server.usc.edu. If Apache is already running, you will need to stop it. To stop the server, change to the Apache 2 *bin* directory (e.g., /home/scf-22/csci571b/apache2/bin, in the example above) and type **apachectl stop**. The following output should be displayed:

```
cs-server.usc.edu(10): apachectl stop
cs-server.usc.edu(11): apachectl start
```

It is a good practice to check the error log file, e.g. /home/scf-22/csci571b/apache2/logs/error_log, to ensure your server is properly running. You may see something similar to this:

```
[Thu Jul 26 11:07:42 2012] [notice] Apache/2.2.22 (Unix) configured -- resuming
normal operations
```

You should also run a PHP "sanity" check (`httpd -M`) to ensure that the PHP module is loaded:

```
cs-server.usc.edu(11): /home/scf-22/csci571b/apache2/bin/httpd  -M
Loaded Modules:
 core_module (static)
 ...
  php5_module (shared)    <---------
Syntax OK
cs-server.usc.edu(12):
```

If the PHP module is loaded successfully, you will see it listed among the loaded modules, as displayed above.

Testing Your PHP module

Change to the Apache 2 htdocs directory, e.g., /home/scf-22/csci571b/apache2/htdocs, and create a new file, named **index.php**, containing this code:

```
<html>
<head>
        <title>PHP Test</title>
        <meta http-equiv="Content-Type" content="text/html;
charset=ISO-8859-1">
```

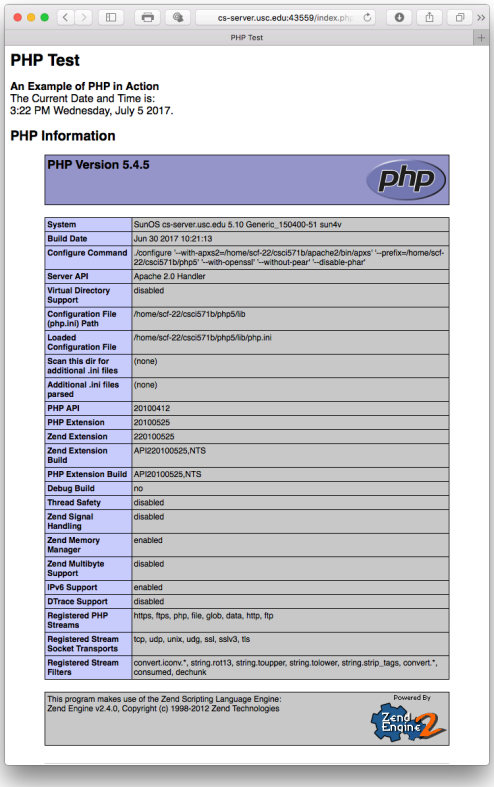
```
</head>
<body>
        <h1>PHP Test</h1>
        <p>
        <b>An Example of PHP in Action</b><br />
        <?php date_default_timezone_set('America/Los_Angeles');?>
                <?php echo "The Current Date and Time is: <br>";
                echo date("g:i A l, F j Y.");?>
        </p>

        <h2>PHP Information</h2>
        <p>
                <?php phpinfo(); ?>
        </p>
</body>
</html>
```

from a web browser enter the following URL (substituting your Apache port number):

```
http://cs-server.usc.edu:33559/index.php
```

You should see the PHP 5 local time and information page below:



You can scroll down and see several pages of listed settings and environment variables for both Apache and PHP.

If you installed PHP in a directory other than the source distribution, as we recommended, you can now safely free up space by deleting the distribution directory, its sub-directories and all its files with:

```
cs-server.usc.edu(12): /usr/bin/rm -r ~/php-5.4.5
```

Useful Links for Compiling, Installing and Configuring PHP

PHP Installation - http://www.php.net/manual/en/install.unix.apache2.php
PHP Documentation - hhttp://www.php.net/manual/