CNT 4714: Enterprise Computing Spring 2013

Installing and Configuring Apache and PHP

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Introduction to PHP

- PHP is officially known as PHP: Hypertext Preprocessor and is very rapidly becoming the most popular server-side scripting language for creating dynamic web pages.
- PHP was created in 1994 by Rasmus Lerdorf (who currently works for Linuxcare, Inc. as a senior open-source researcher) to track users at his Web site. Lerdorf originally called it Personal Home Page Tools in a package he released in 1995. It eventually became an Apache Software Foundation project.
- PHP2 featured built-in database support and form handling. In 1997, PHP3 was released and featured a new parser which substantially increased performance and led to an explosion in PHP use.

Introduction to PHP (cont.)

- PHP4 featured the Zend Engine and was considerably faster and more powerful than its predecessors and further enhanced the popularity of PHP.
- The current release is PHP 5.4.8, released October 18, 2012 and features the Zend Engine 2, which provides further increases in speed and functionality. You can download the latest version of PHP at www.php.net. For more details on the Zend Engine 2 see www.zend.com.
- Today more than 20 million domains utilize PHP technology.

Introduction to PHP (cont.)

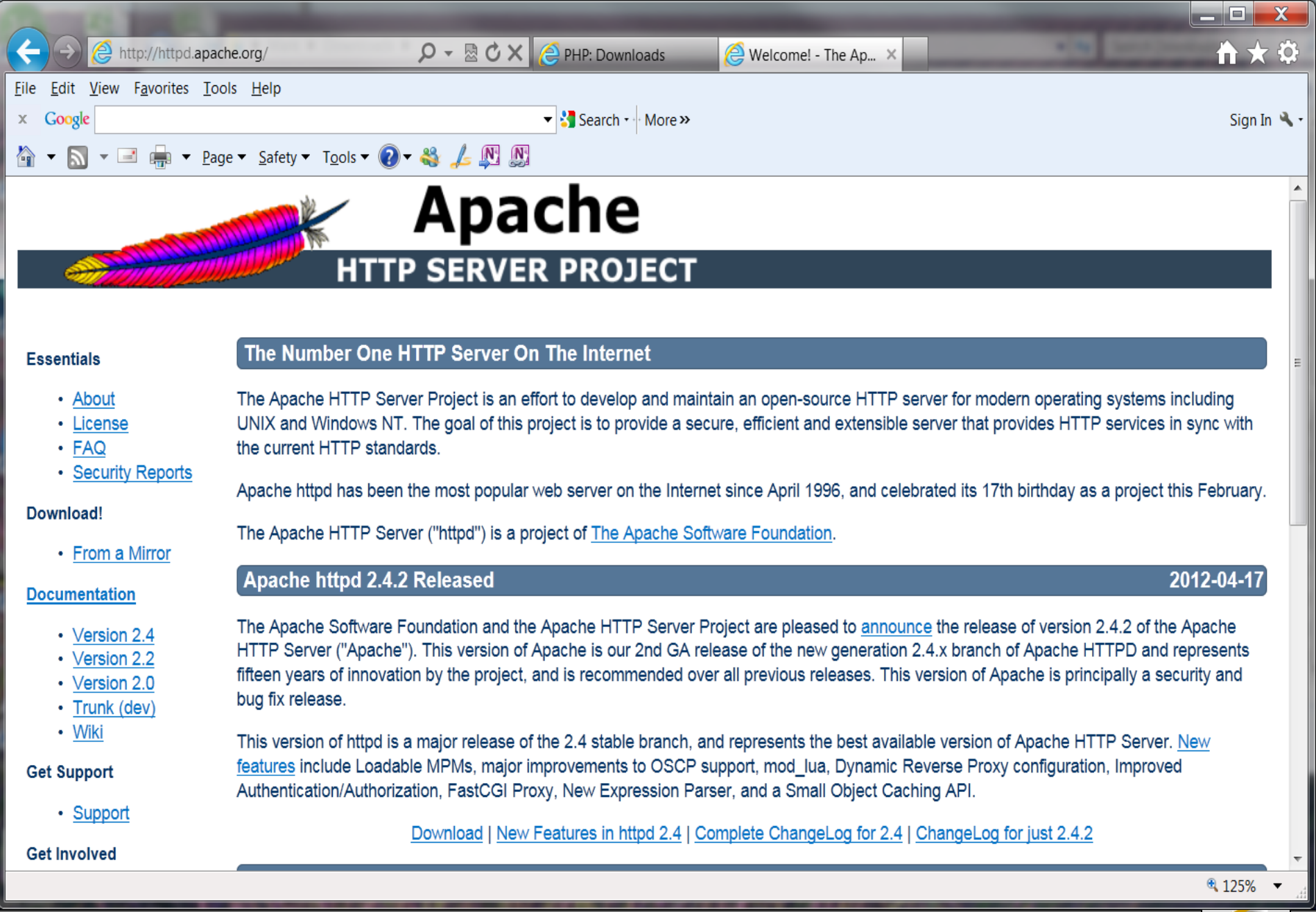
- The power of the Web resides not only in serving content to users, but also in responding to requests from users and generating Web pages with dynamic content.
- Interactivity between the user and the server has become a crucial part of Web functionality. While other languages can also perform these functions, PHP was written specifically for interacting with the Web.
- PHP code is embedded directly into HTML documents. This allows the document author to write HTML in a clear, concise manner, without having to use multiple `print` statements, as is necessary with other CGI-based languages.

Introduction to PHP (cont.)

- PHP script file names usually end with `.php`, although a server can be configured to handle other file extensions.
- To run a PHP script, PHP must first be installed on your system.
- Although PHP can be used from the command line, a Web server is required to take full advantage of the scripting language. We will utilize the Apache HTTP Server available from www.apache.org. (Note: this is not the Tomcat server you've already used.) Current version is 2.4.1 which is a new major version change from the previous 2.2.xx versions (mostly in the areas of security) and was released on February 21, 2012. However, we will not use this latest version of Apache, but with either 2.2.22 or 2.2.21 (See page 23.)
- Although there are several different packages that bundle PHP with MySQL and various HTTP servers, as IT majors you need to experience the set-up and integration of this type of software, so I will show you how to setup the Apache HTTP Server and integrate both PHP and MySQL into it.

Installing Apache HTTP Server

- The version of the Apache HTTP server that we will use is 2.2.21 or 2.2.22 and it is available for download from www.apache.org.
- Go to the apache homepage at the link shown above and scroll way down the page to the listing of the apache projects. The HTTP Server is the first one on the list.
- Click on this link and you will be taken to the HTTP Server project main page. (See page 7.)
- Click the Download from a mirror link on the left hand side of the page. This will take you to the main download page. (See page 8.)
- Select the proper format for your platform and download it to your machine. Go to page 9 to begin the Apache install procedure.


http://httpd.apache.org/
PHP: Downloads
Welcome! - The Ap...
File Edit View Favorites Tools Help
Google
Search
More »
Sign In
Page
Safety
Tools
Apache
HTTP SERVER PROJECT
Essentials
About
License
FAQ
Security Reports
Download!
From a Mirror
Documentation
Version 2.4
Version 2.2
Version 2.0
Trunk (dev)
Wiki
Get Support
Support
Get Involved
The Number One HTTP Server On The Internet
The Apache HTTP Server Project is an effort to develop and maintain an open-source HTTP server for modern operating systems including UNIX and Windows NT. The goal of this project is to provide a secure, efficient and extensible server that provides HTTP services in sync with the current HTTP standards.
Apache httpd has been the most popular web server on the Internet since April 1996, and celebrated its 17th birthday as a project this February.
The Apache HTTP Server ("httpd") is a project of The Apache Software Foundation.
Apache httpd 2.4.2 Released 2012-04-17
The Apache Software Foundation and the Apache HTTP Server Project are pleased to announce the release of version 2.4.2 of the Apache HTTP Server ("Apache"). This version of Apache is our 2nd GA release of the new generation 2.4.x branch of Apache HTTPD and represents fifteen years of innovation by the project, and is recommended over all previous releases. This version of Apache is principally a security and bug fix release.
This version of httpd is a major release of the 2.4 stable branch, and represents the best available version of Apache HTTP Server. New features include Loadable MPMs, major improvements to OSCP support, mod_lua, Dynamic Reverse Proxy configuration, Improved Authentication/Authorization, FastCGI Proxy, New Expression Parser, and a Small Object Caching API.
Download | New Features in httpd 2.4 | Complete ChangeLog for 2.4 | ChangeLog for just 2.4.2
125%

Download - The Apache HTTP Server Project - Windows Internet Explorer

http://httpd.apache.org/download.cgi

Search Results

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Download - The Apache HTTP Server Project

Page | Safety | Tools

Apache HTTP SERVER PROJECT

Essentials

- About
- License
- FAQ
- Security Reports

Download!

- From a Mirror

Documentation

- Version 2.4
- Version 2.2
- Version 2.0
- Trunk (dev)
- Wiki

Get Support

Downloading the Apache HTTP Server

Use the links below to download the Apache HTTP Server from one of our mirrors. You **must** verify the integrity of the downloaded files using signatures downloaded from our main distribution directory.

Only current recommended releases are available on the main distribution site and its mirrors. Older releases, including the 1.3 family of releases, are available from the archive download site.

Select 2.2.23

Stable Release - Latest Version:

- 2.4.3 (released 2012-08-21)

Stable Release - 2.2 Branch:

- 2.2.23 (released 2012-09-13)

Legacy Release:

- 2.0.64 (released 2010-10-19)

If you are downloading the Win32 distribution, please read these important notes

Internet | Protected Mode: Off

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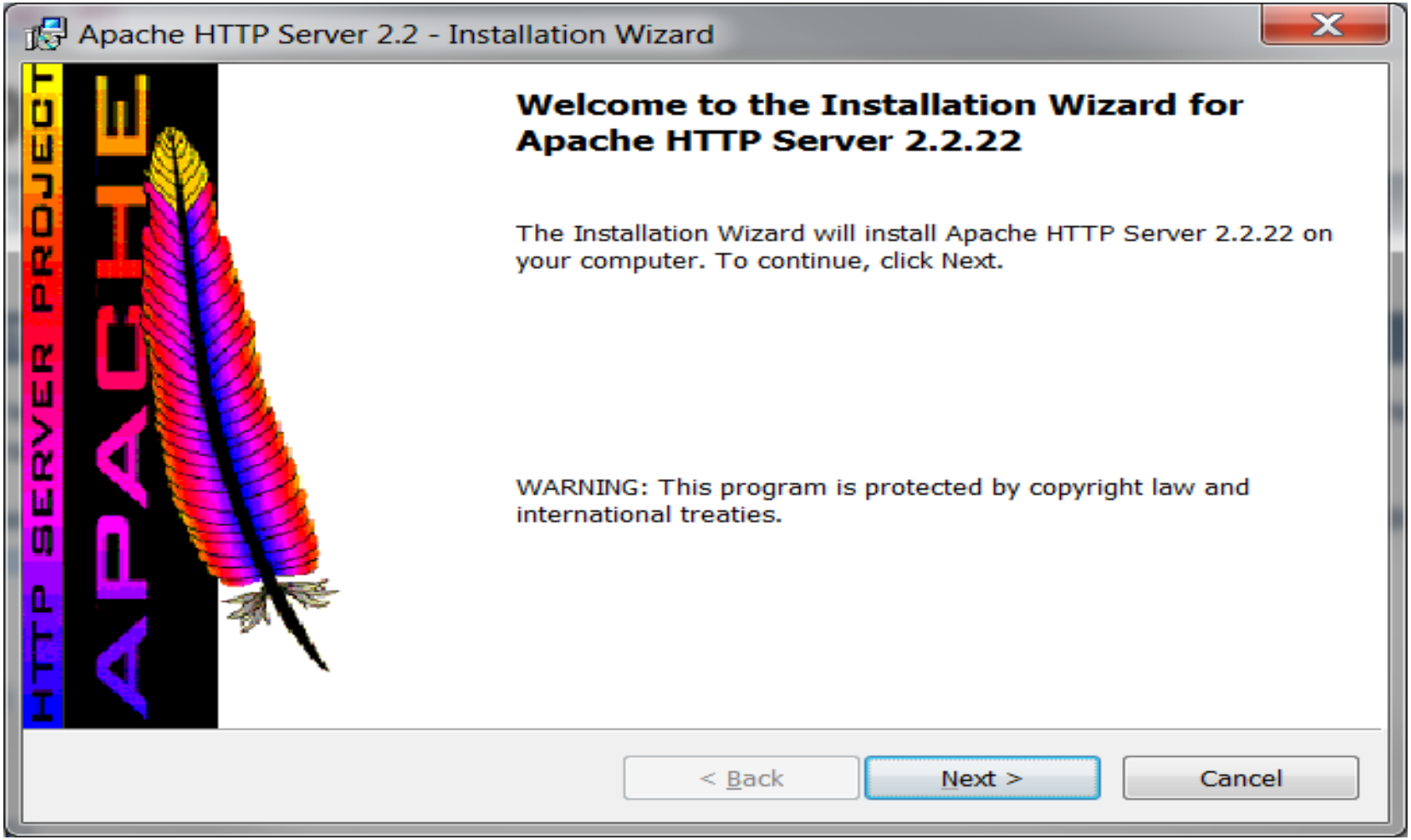
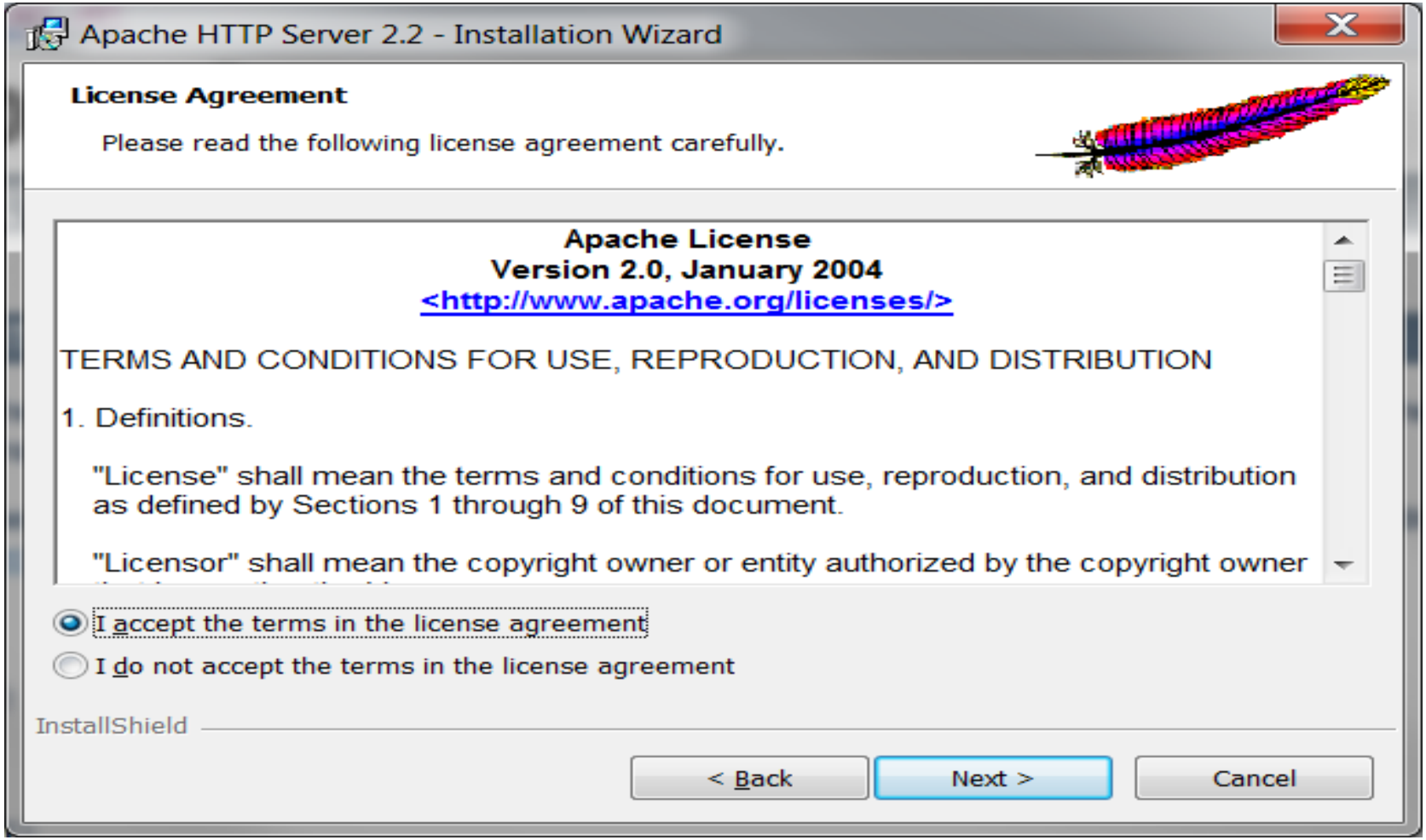
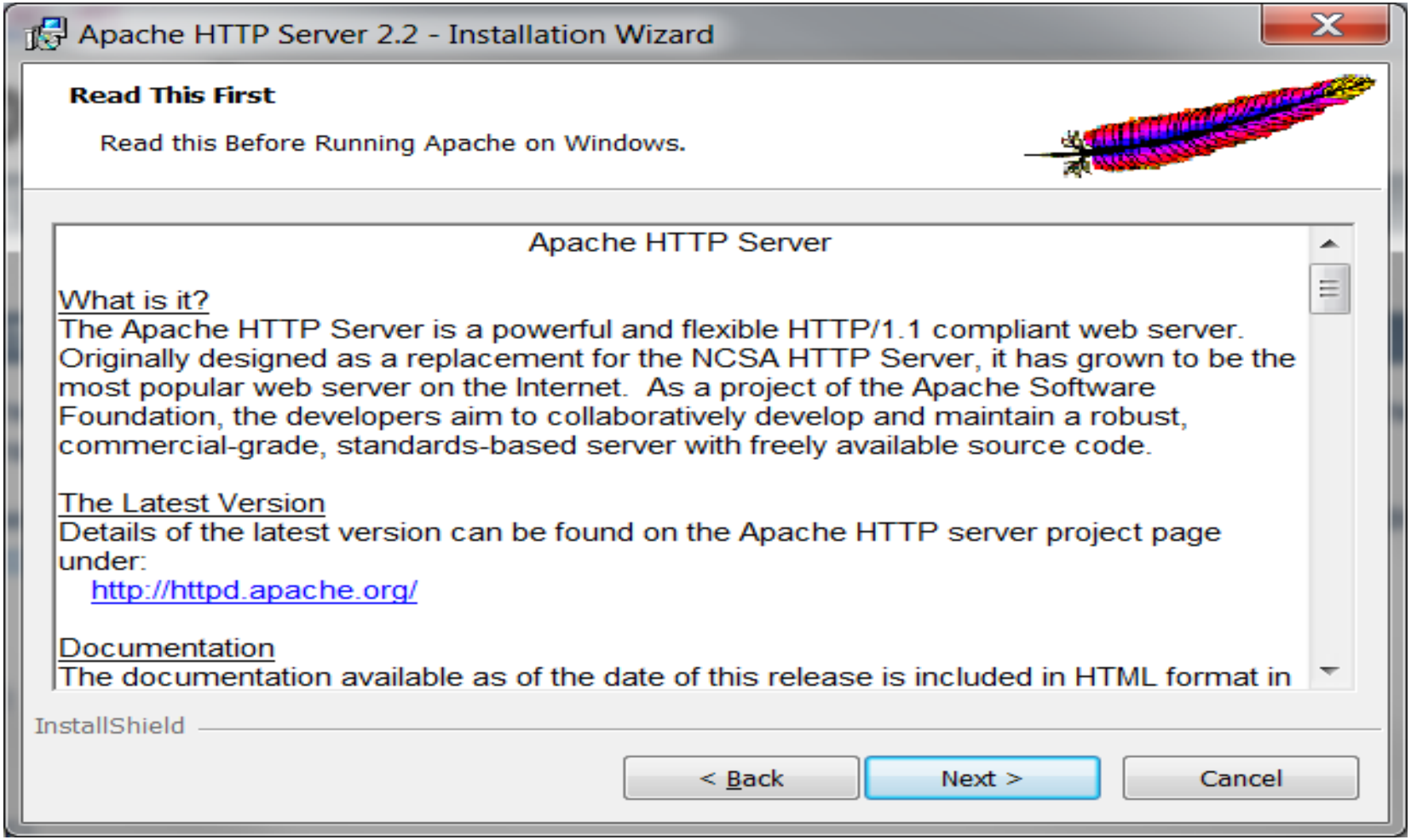
Installing And Configuring Apache (cont.)



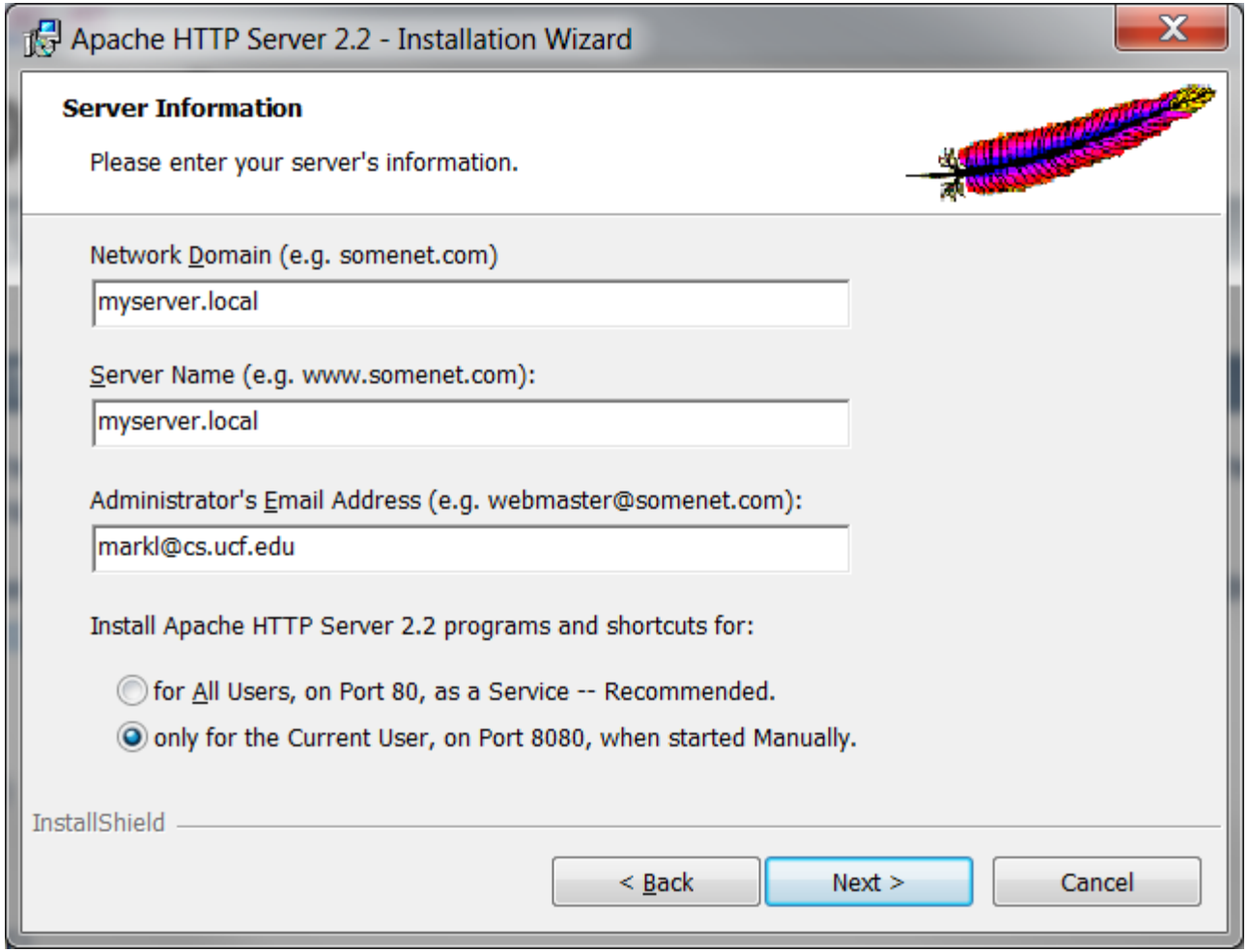
Installing And Configuring Apache (cont.)



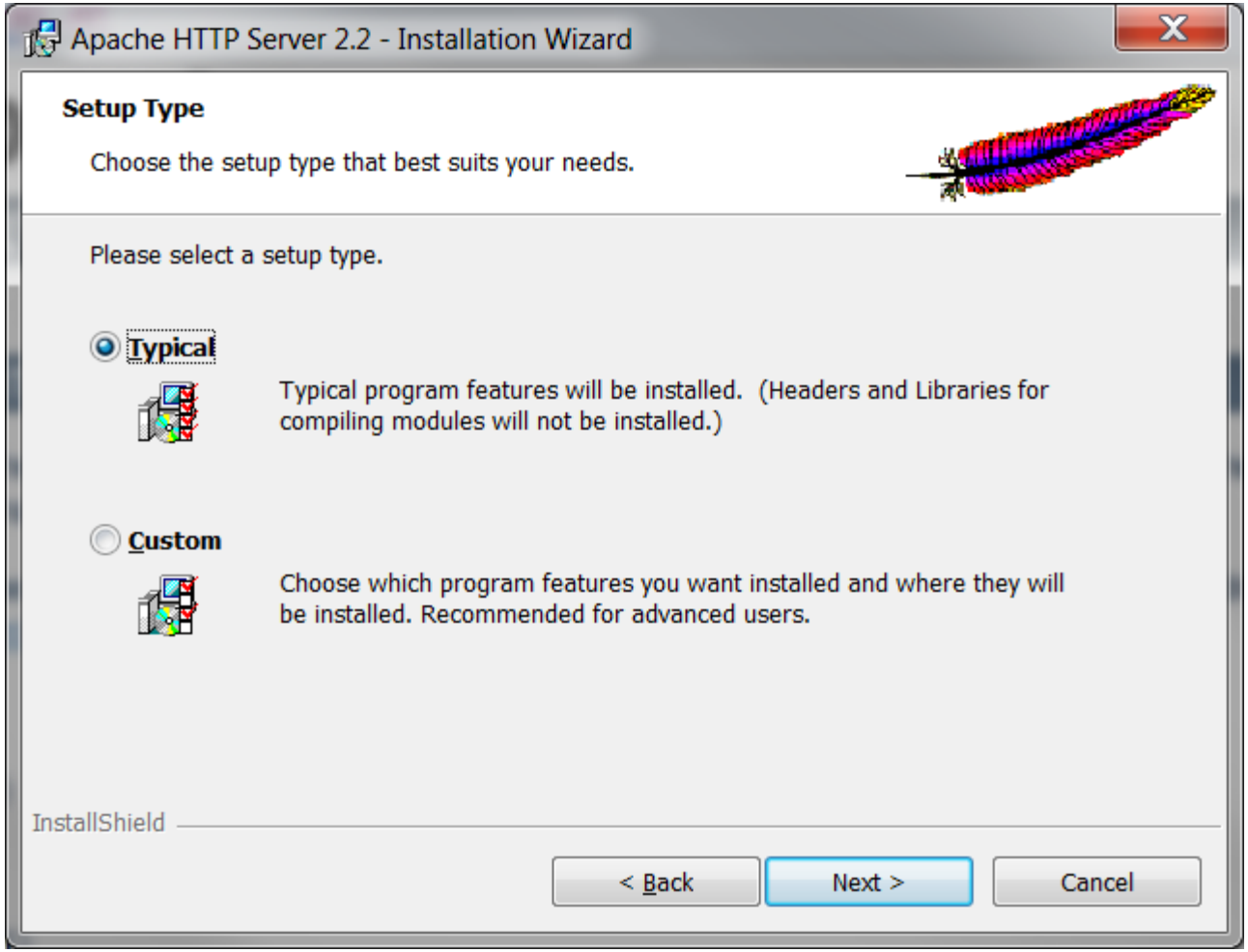
Installing And Configuring Apache (cont.)



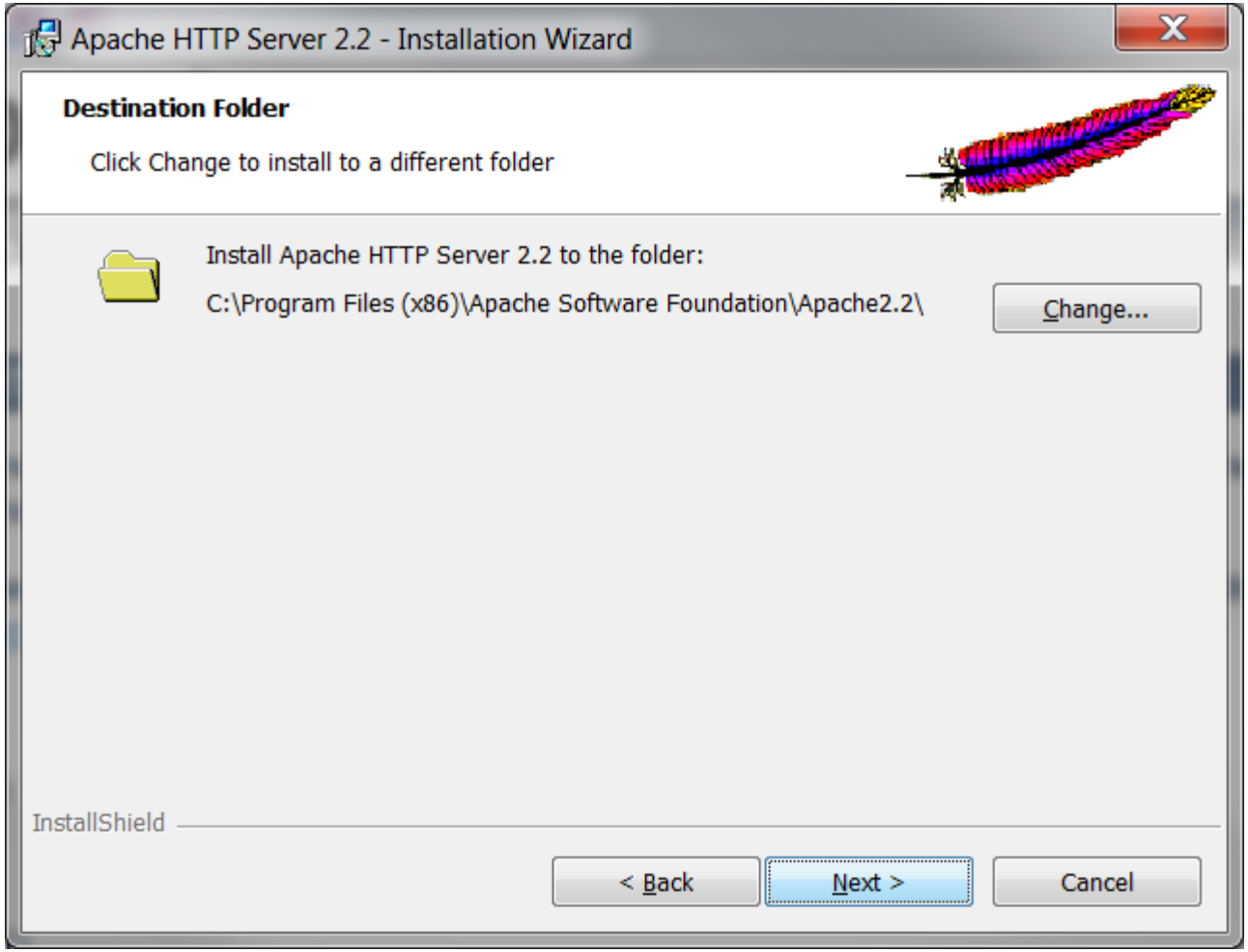
Installing And Configuring Apache (cont.)



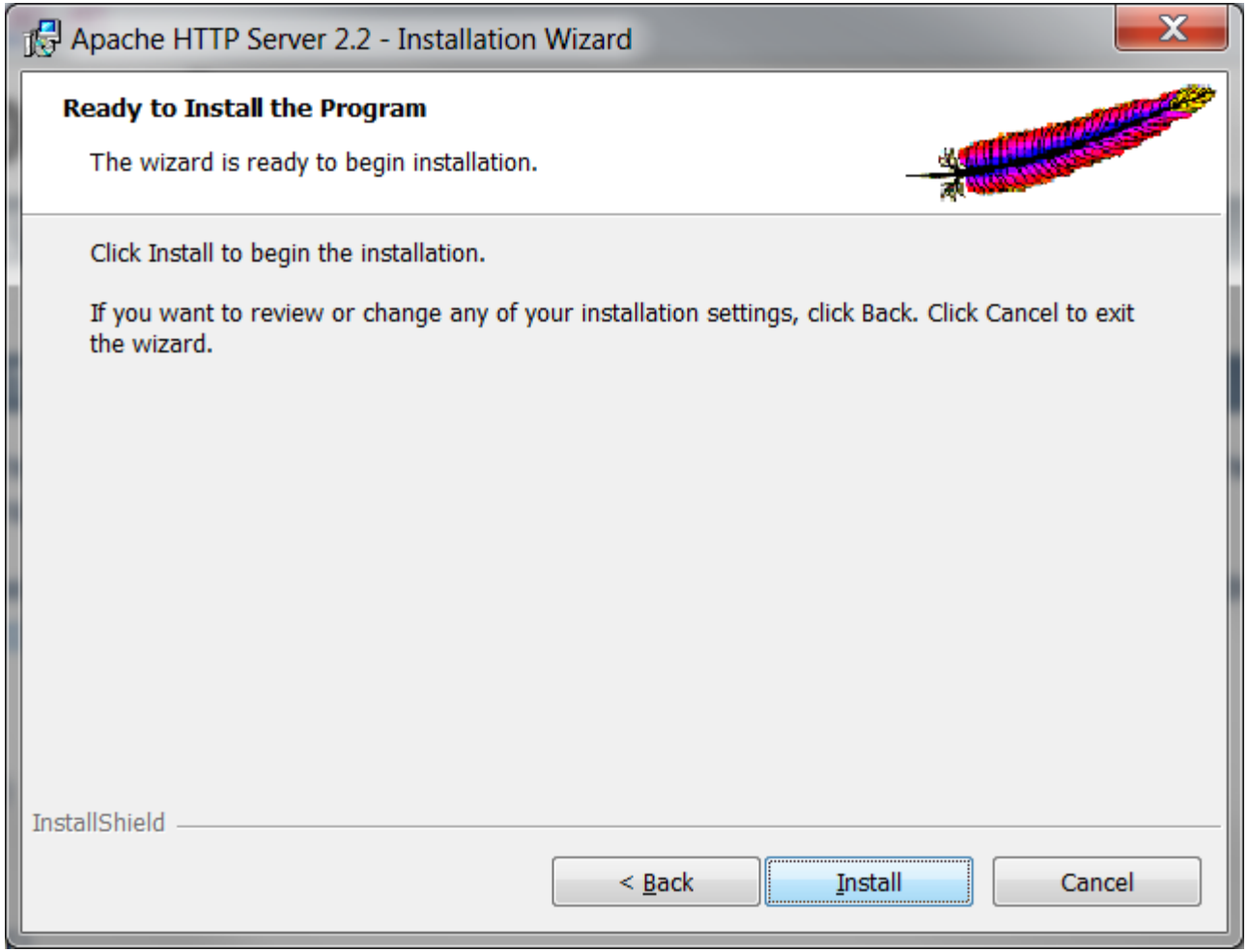
Installing And Configuring Apache (cont.)



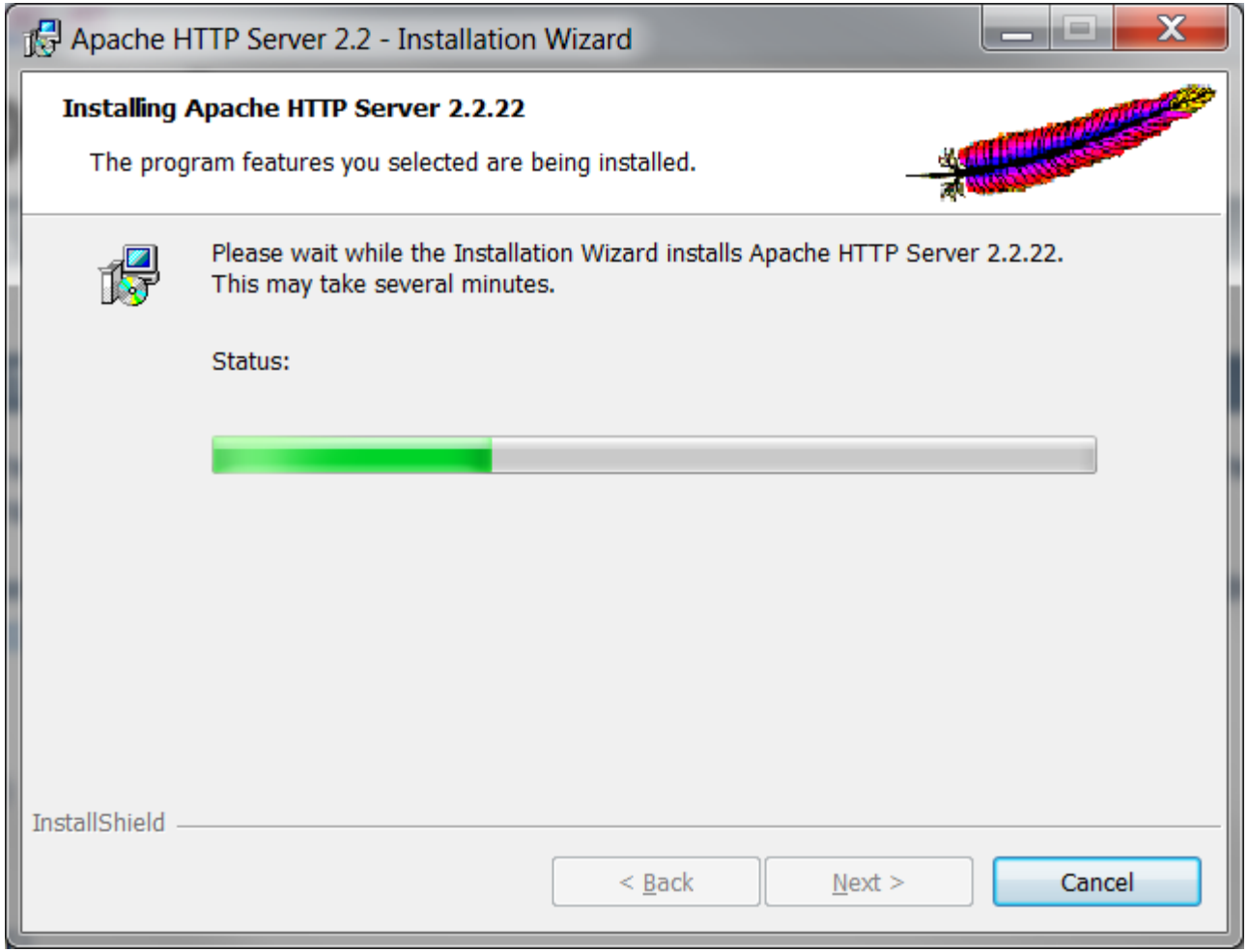
Installing And Configuring Apache (cont.)



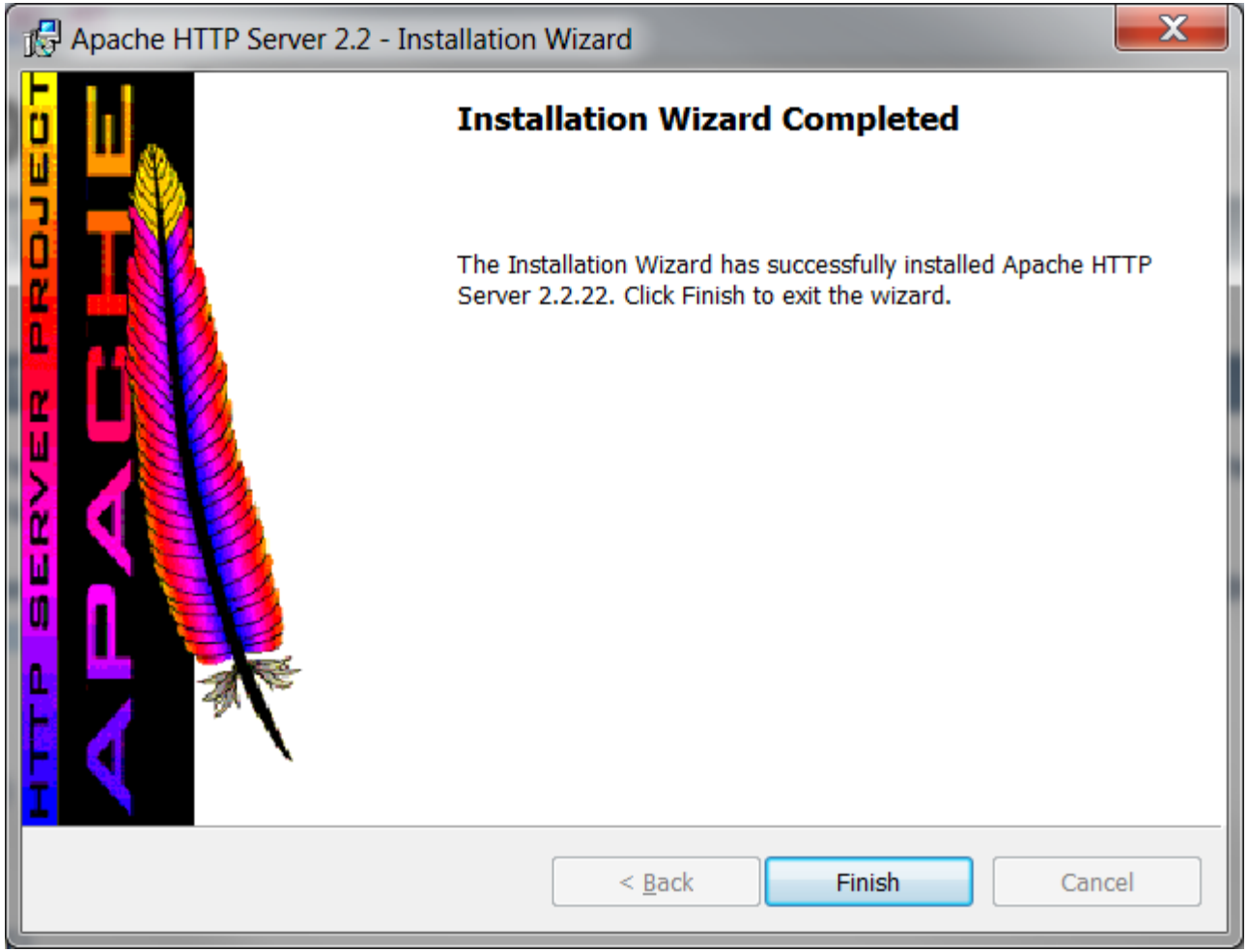
Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)

C:\Program Files (x86)\Apache Software Foundation\Apache2.2\conf\httpd.conf - Notepad++

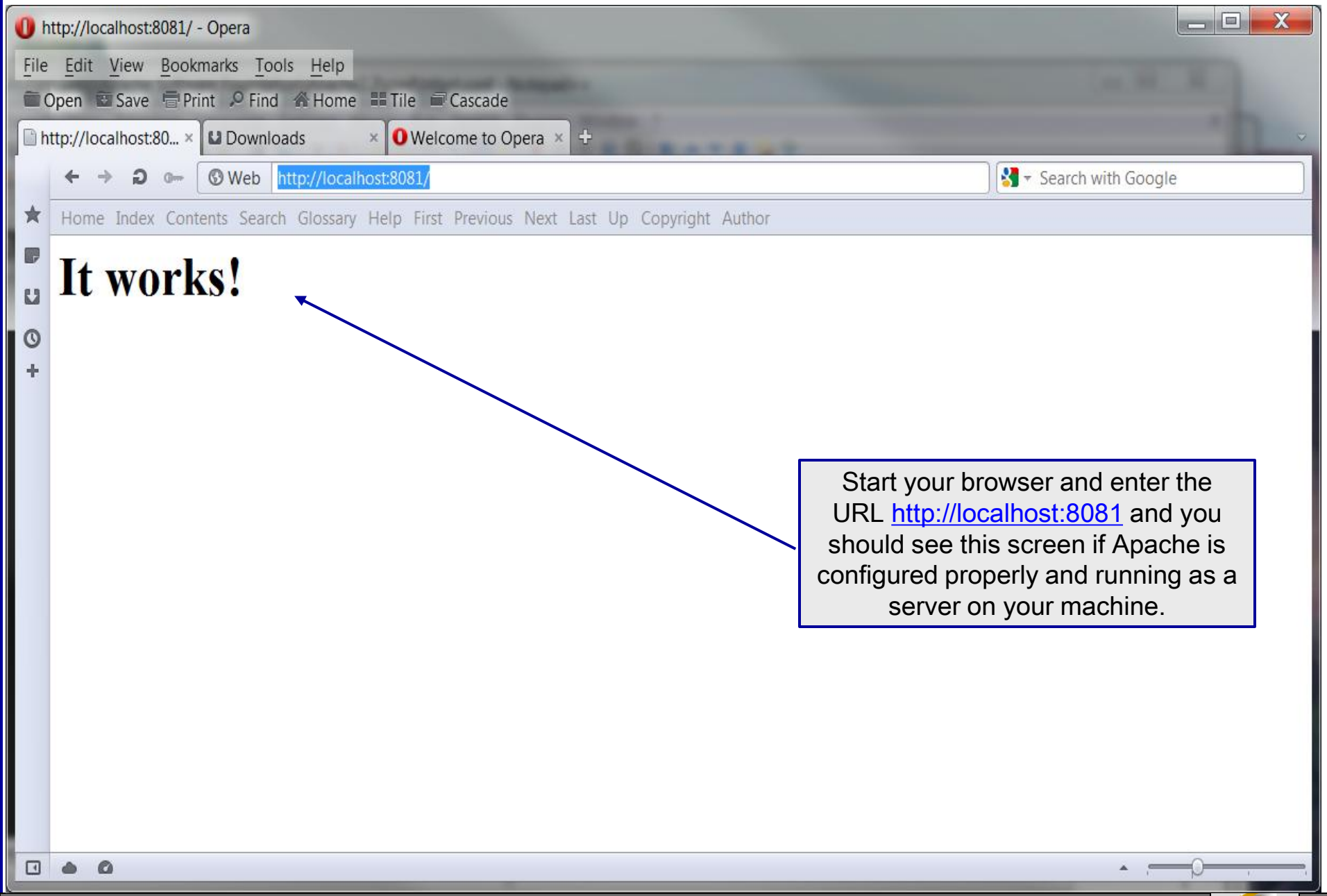
File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?

httpd.conf

```
35 ServerRoot "C:/Program Files (x86)/Apache Software Foundation/Apache2.2"
36
37 #
38 # Listen: Allows you to bind Apache to specific IP addresses and/or
39 # ports, instead of the default. See also the <VirtualHost>
40 # directive.
41 #
42 # Change this to Listen on specific IP addresses as shown below to
43 # prevent Apache from glomming onto all bound IP addresses.
44 #
45 #Listen 12.34.56.78:80
46 #Listen 8080
47 Listen 8081
48
49 #
50 # Dynamic Shared Object (DSO) Support
51 #
52 # To be able to use the functionality of a module which was built as a DSO you
53 # have to place corresponding `LoadModule' lines at this location so the
54 # directives contained in it are actually available _before_ they are used.
55 # Statically compiled modules (those listed by `httpd -l') do not need
56 # to be loaded here.
```

Normal text file | length : 18339 | lines : 493 | Ln : 47 | Col : 12 | Sel : 0 | Dos\Windows | ANSI | INS

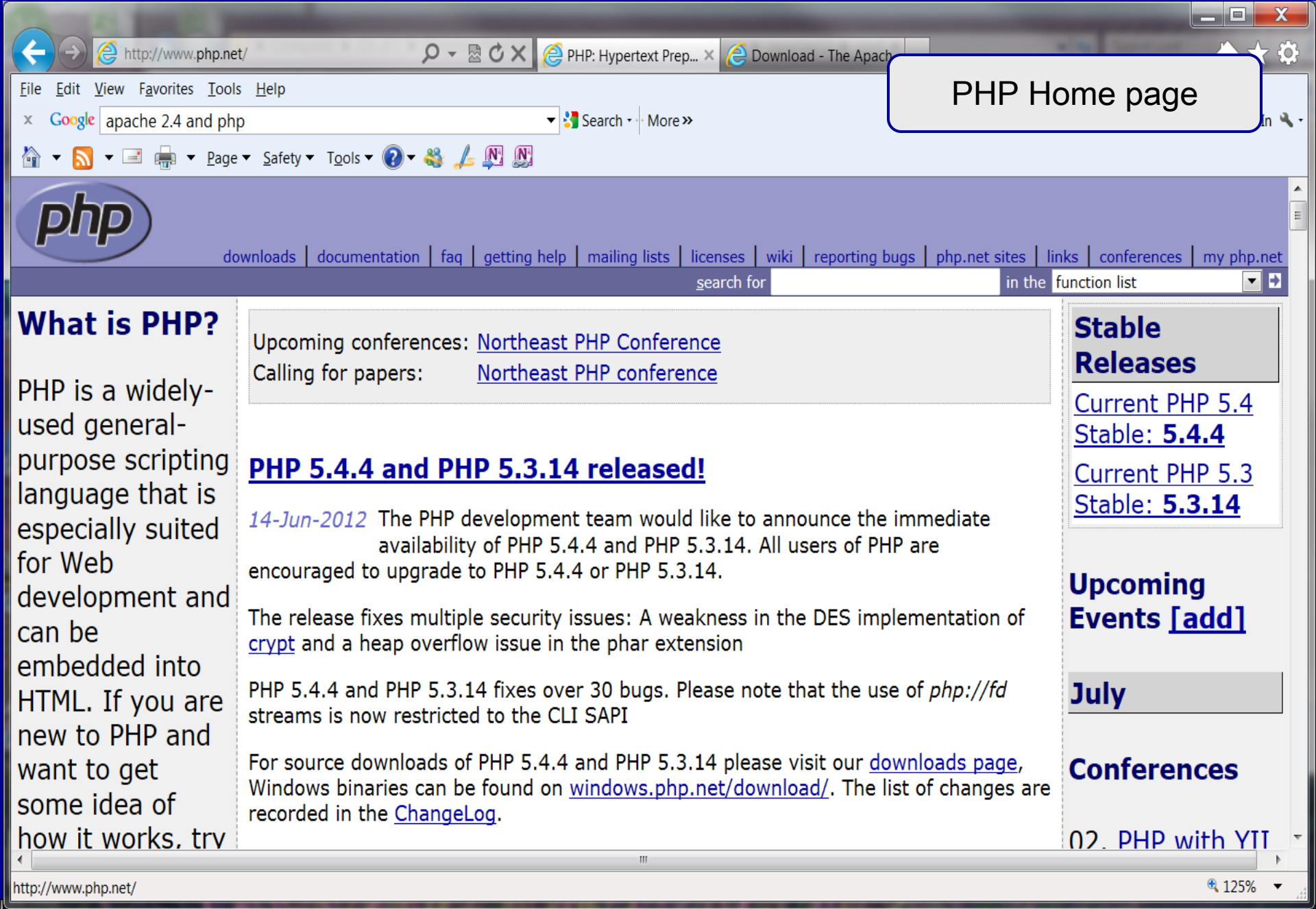
Edit the `conf/http.conf` file so that we will override the default port and set it to port 8081.

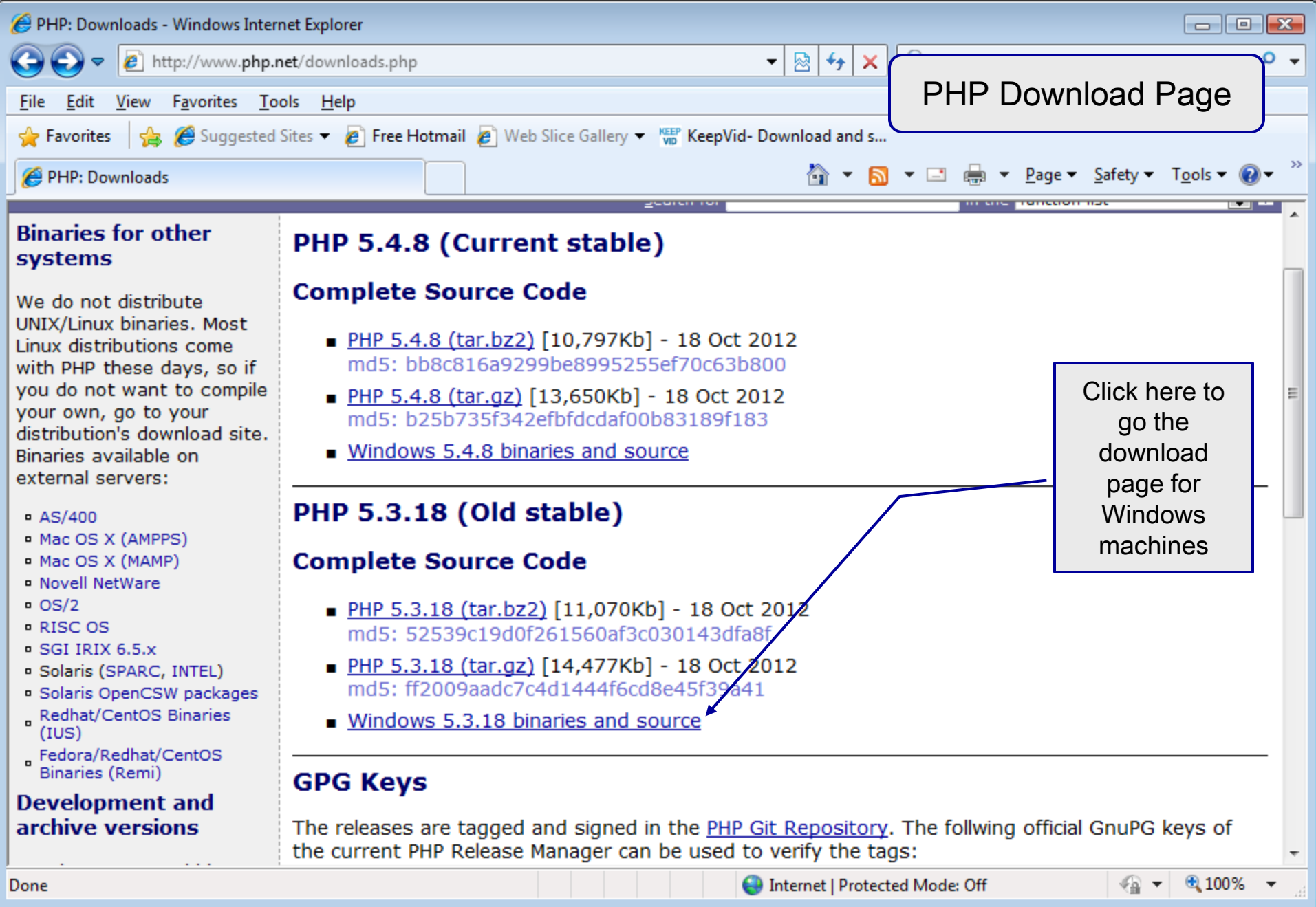


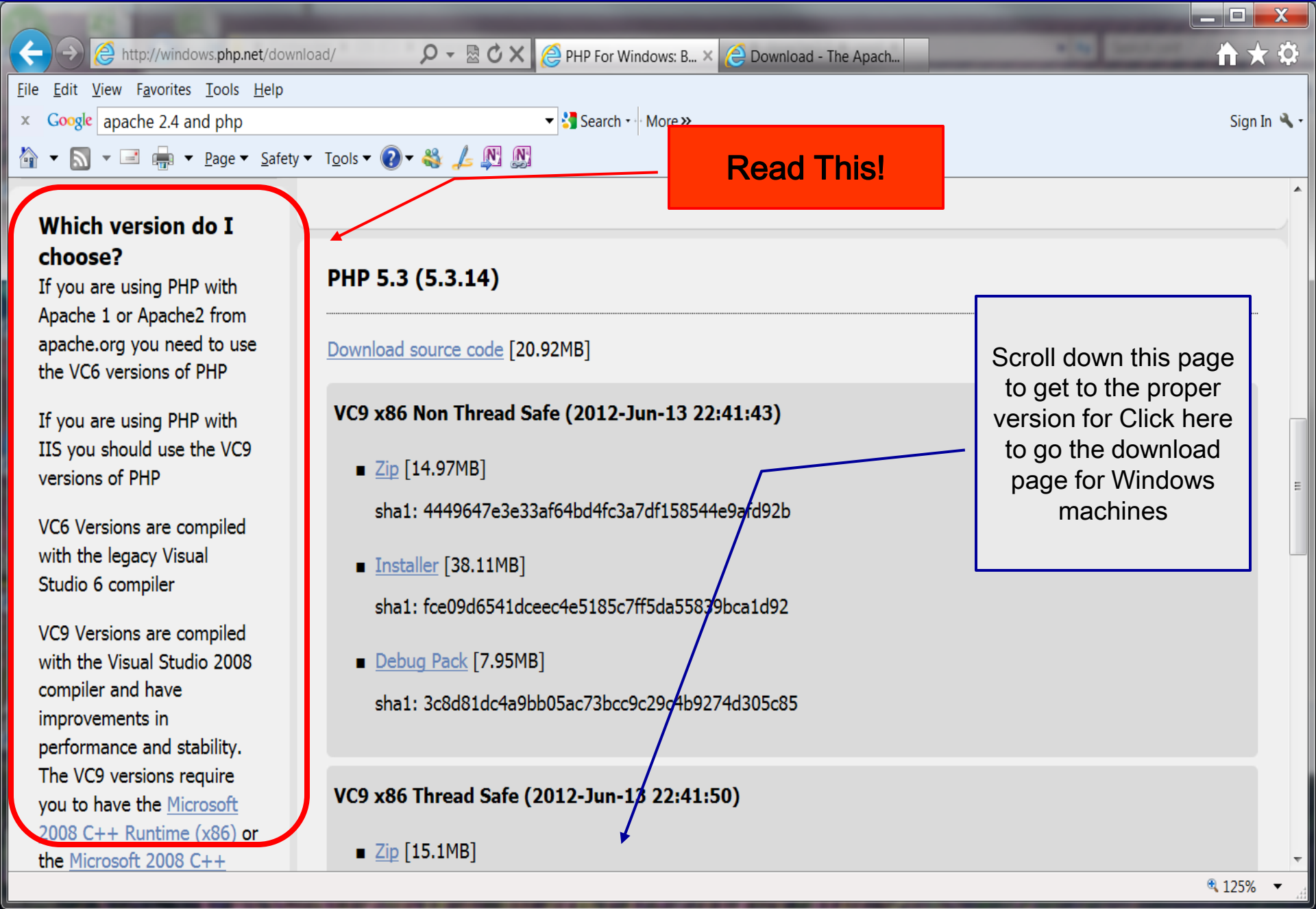
Start your browser and enter the URL http://localhost:8081 and you should see this screen if Apache is configured properly and running as a server on your machine.

Installing and Configuring PHP

- The current stable version of PHP (PHP 5.4.8 can be downloaded from www.php.net.
- Note that since we are using the Apache HTTP Server that we will need to be sure and install the correct version of PHP which will not be 5.4.4, but rather 5.2.17 so that it will integrate into the Apache HTTP Server. (See page 23.)
- Click on the downloads link at the top of the PHP home page and select the proper format for your machine. (See page 22.)
- Then download PHP to your machine and install it using the instructions beginning on page 23.


http://www.php.net/
PHP: Hypertext Prep...
Download - The Apach
File Edit View Favorites Tools Help
Google apache 2.4 and php
Search
More
Page
Safety
Tools
PHP Home page
php
downloads | documentation | faq | getting help | mailing lists | licenses | wiki | reporting bugs | php.net sites | links | conferences | my php.net
search for
in the function list
What is PHP?
PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. If you are new to PHP and want to get some idea of how it works, try
Upcoming conferences: Northeast PHP Conference
Calling for papers: Northeast PHP conference
PHP 5.4.4 and PHP 5.3.14 released!
14-Jun-2012 The PHP development team would like to announce the immediate availability of PHP 5.4.4 and PHP 5.3.14. All users of PHP are encouraged to upgrade to PHP 5.4.4 or PHP 5.3.14.
The release fixes multiple security issues: A weakness in the DES implementation of crypt and a heap overflow issue in the phar extension
PHP 5.4.4 and PHP 5.3.14 fixes over 30 bugs. Please note that the use of php://fd streams is now restricted to the CLI SAPI
For source downloads of PHP 5.4.4 and PHP 5.3.14 please visit our downloads page, Windows binaries can be found on windows.php.net/download/. The list of changes are recorded in the ChangeLog.
Stable Releases
Current PHP 5.4 Stable: 5.4.4
Current PHP 5.3 Stable: 5.3.14
Upcoming Events [add]
July
Conferences
02. PHP with YTI
http://www.php.net/
125%


PHP: Downloads - Windows Internet Explorer
http://www.php.net/downloads.php
File Edit View Favorites Tools Help
Favorites
Suggested Sites
Free Hotmail
Web Slice Gallery
KeepVid- Download and s...
PHP: Downloads
Page
Safety
Tools
PHP Download Page
Binaries for other systems
We do not distribute UNIX/Linux binaries. Most Linux distributions come with PHP these days, so if you do not want to compile your own, go to your distribution's download site. Binaries available on external servers:
AS/400
Mac OS X (AMPPS)
Mac OS X (MAMP)
Novell NetWare
OS/2
RISC OS
SGI IRIX 6.5.x
Solaris (SPARC, INTEL)
Solaris OpenCSW packages
Redhat/CentOS Binaries (IUS)
Fedora/Redhat/CentOS Binaries (Remi)
Development and archive versions
PHP 5.4.8 (Current stable)
Complete Source Code
PHP 5.4.8 (tar.bz2) [10,797Kb] - 18 Oct 2012
md5: bb8c816a9299be8995255ef70c63b800
PHP 5.4.8 (tar.gz) [13,650Kb] - 18 Oct 2012
md5: b25b735f342efbfdcdaf00b83189f183
Windows 5.4.8 binaries and source
PHP 5.3.18 (Old stable)
Complete Source Code
PHP 5.3.18 (tar.bz2) [11,070Kb] - 18 Oct 2012
md5: 52539c19d0f261560af3c030143dfa8f
PHP 5.3.18 (tar.gz) [14,477Kb] - 18 Oct 2012
md5: ff2009aadc7c4d1444f6cd8e45f39a41
Windows 5.3.18 binaries and source
Click here to go the download page for Windows machines
GPG Keys
The releases are tagged and signed in the PHP Git Repository. The follwing official GnuPG keys of the current PHP Release Manager can be used to verify the tags:
Done
Internet | Protected Mode: Off
100%


http://windows.php.net/download/
PHP For Windows: B...
Download - The Apach...
File Edit View Favorites Tools Help
Google apache 2.4 and php
Search
More
Sign In
Page
Safety
Tools
Read This!
Which version do I choose?
If you are using PHP with Apache 1 or Apache2 from apache.org you need to use the VC6 versions of PHP
If you are using PHP with IIS you should use the VC9 versions of PHP
VC6 Versions are compiled with the legacy Visual Studio 6 compiler
VC9 Versions are compiled with the Visual Studio 2008 compiler and have improvements in performance and stability. The VC9 versions require you to have the Microsoft 2008 C++ Runtime (x86) or the Microsoft 2008 C++
PHP 5.3 (5.3.14)
Download source code [20.92MB]
VC9 x86 Non Thread Safe (2012-Jun-13 22:41:43)
Zip [14.97MB]
sha1: 4449647e3e33af64bd4fc3a7df158544e9afd92b
Installer [38.11MB]
sha1: fce09d6541dceec4e5185c7ff5da55839bca1d92
Debug Pack [7.95MB]
sha1: 3c8d81dc4a9bb05ac73bcc9c29c4b9274d305c85
VC9 x86 Thread Safe (2012-Jun-13 22:41:50)
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Scroll down this page to get to the proper version for Click here to go the download page for Windows machines
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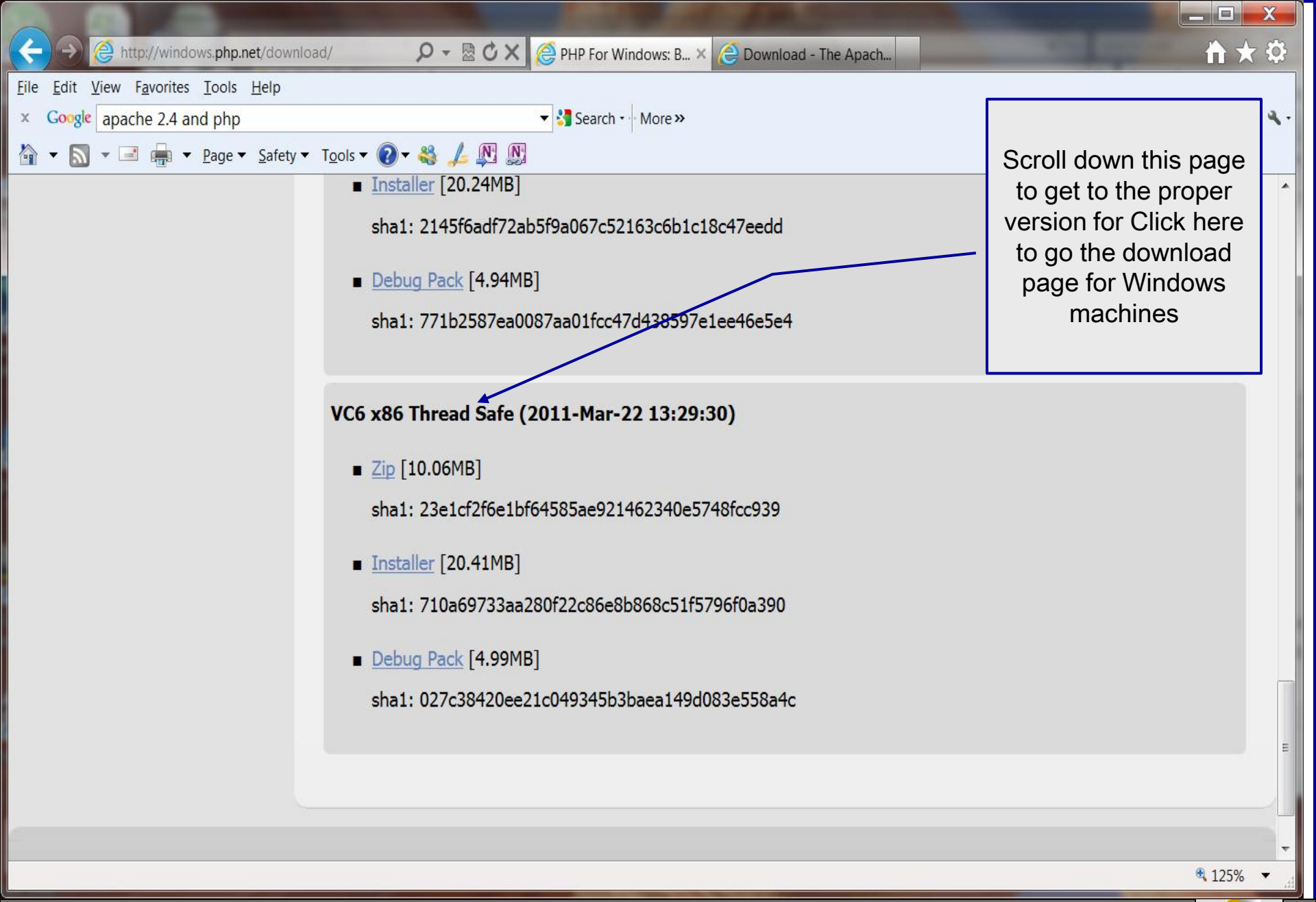
http://windows.php.net/download/
PHP For Windows: B...
Download - The Apach...
File Edit View Favorites Tools Help
Google apache 2.4 and php
Search
More
Page
Safety
Tools
Installer [20.24MB]
sha1: 2145f6adf72ab5f9a067c52163c6b1c18c47eedd
Debug Pack [4.94MB]
sha1: 771b2587ea0087aa01fcc47d438597e1ee46e5e4
Scroll down this page to get to the proper version for Click here to go the download page for Windows machines
VC6 x86 Thread Safe (2011-Mar-22 13:29:30)
Zip [10.06MB]
sha1: 23e1cf2f6e1bf64585ae921462340e5748fcc939
Installer [20.41MB]
sha1: 710a69733aa280f22c86e8b868c51f5796f0a390
Debug Pack [4.99MB]
sha1: 027c38420ee21c049345b3baea149d083e558a4c
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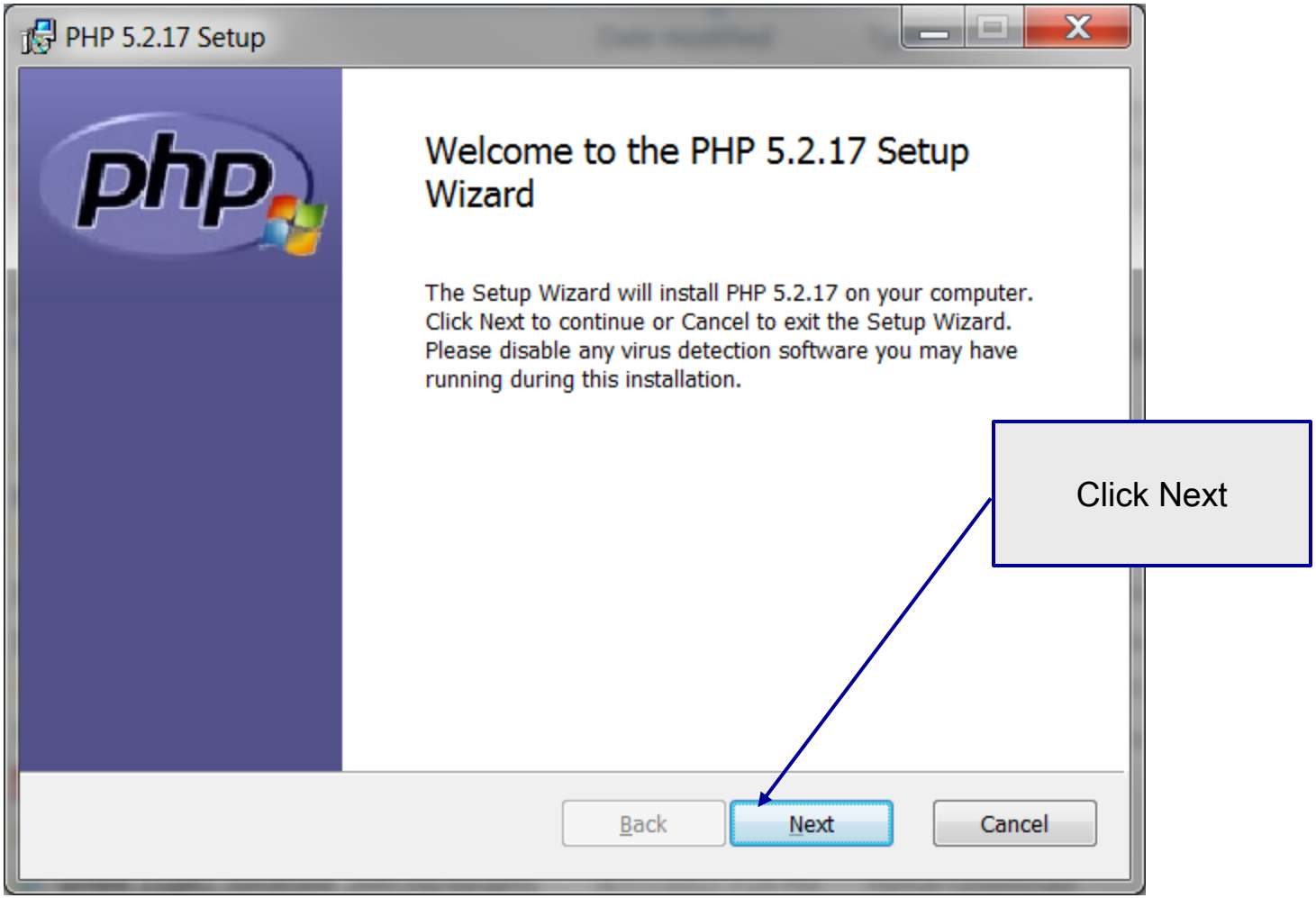
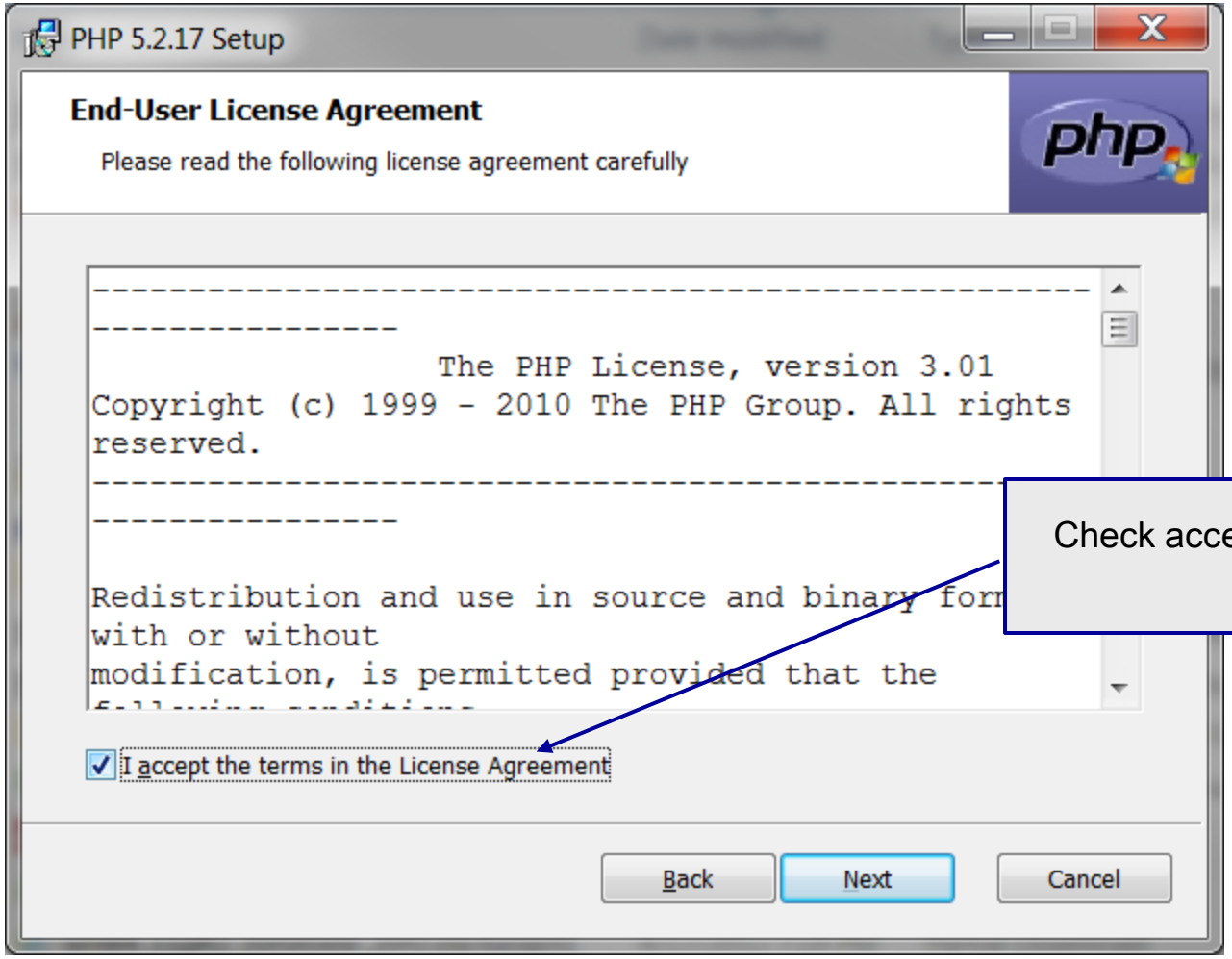
Installing And Configuring PHP (cont.)

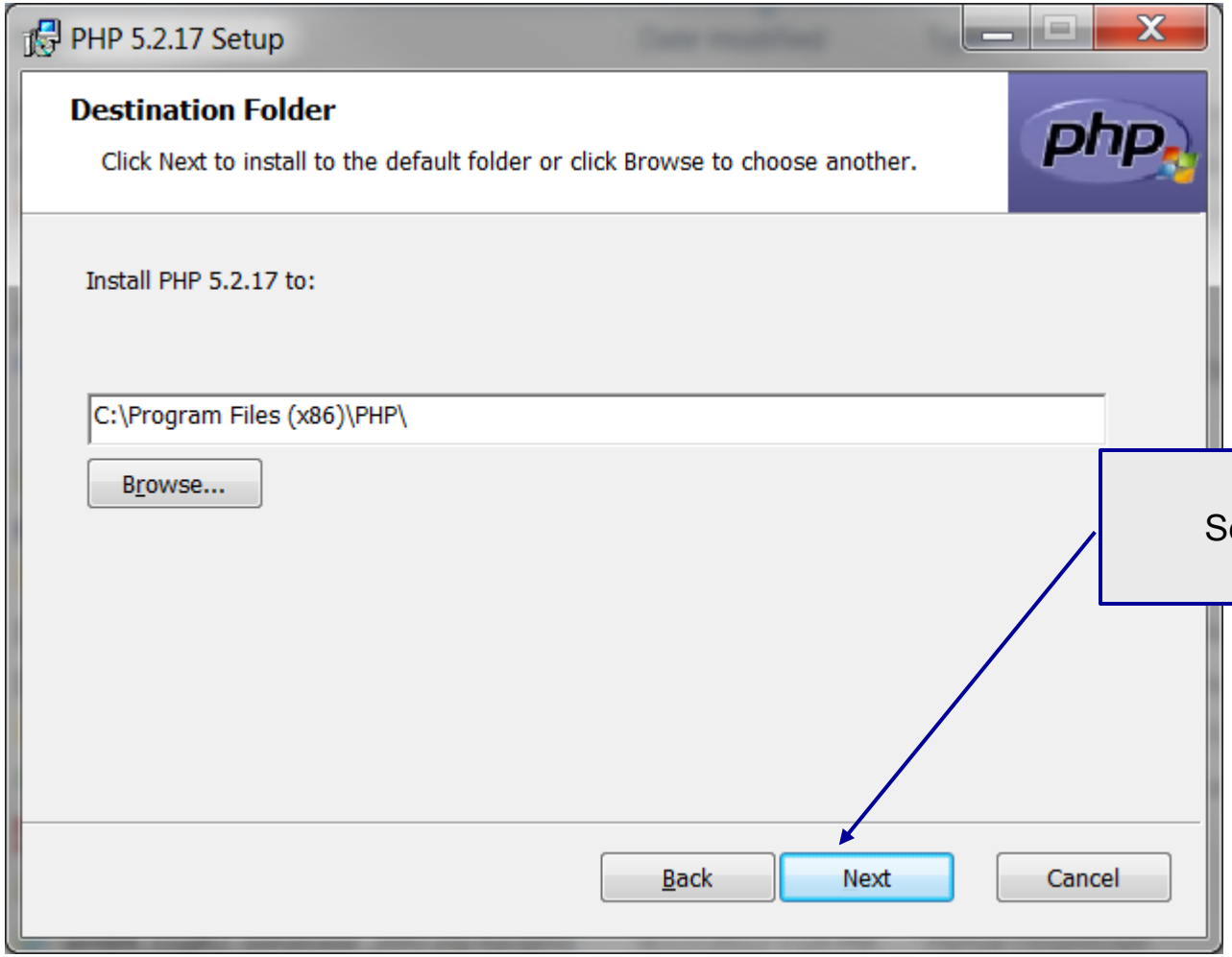


Installing And Configuring Apache (cont.)



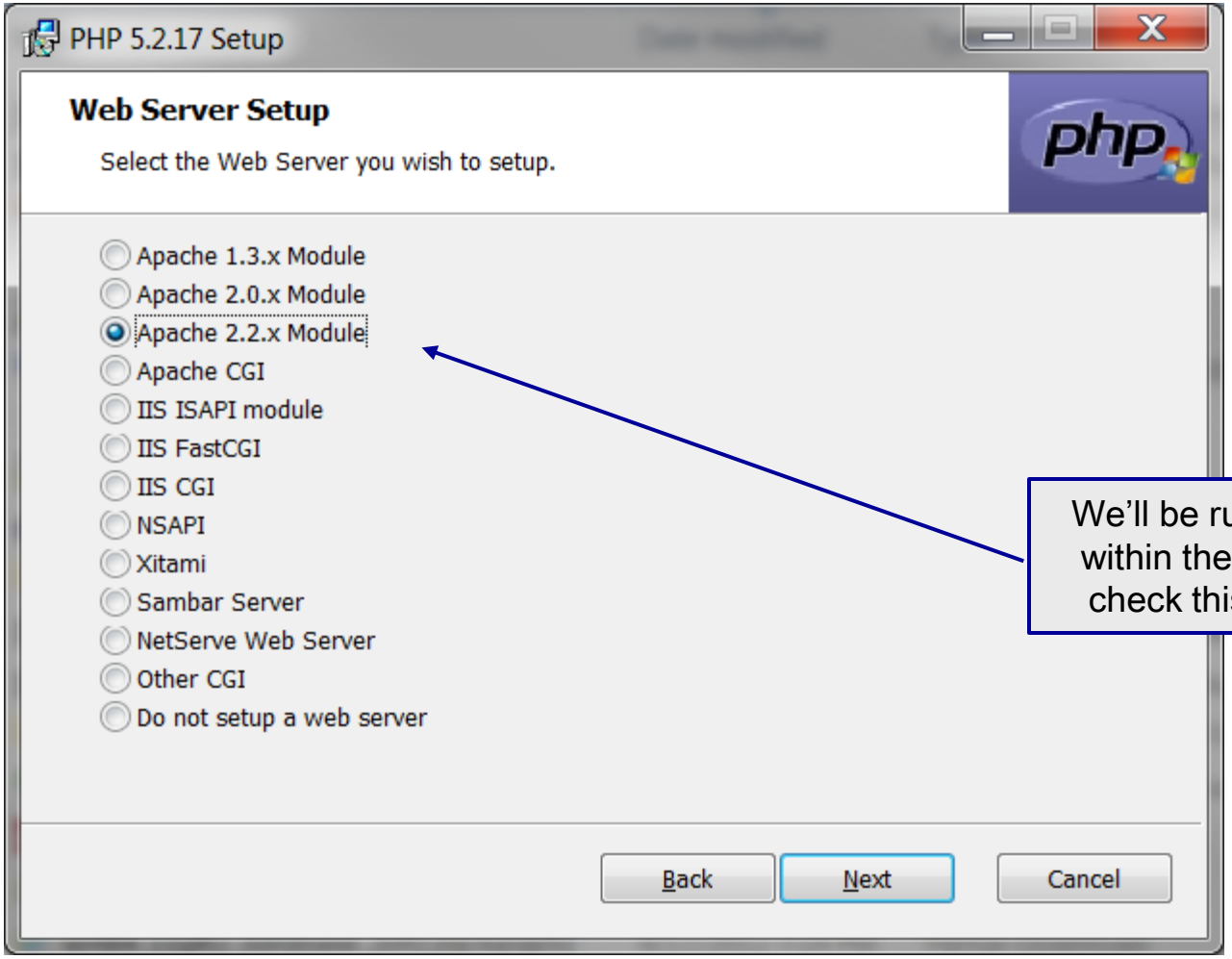
Check accept terms box and click Next.

Installing And Configuring Apache (cont.)



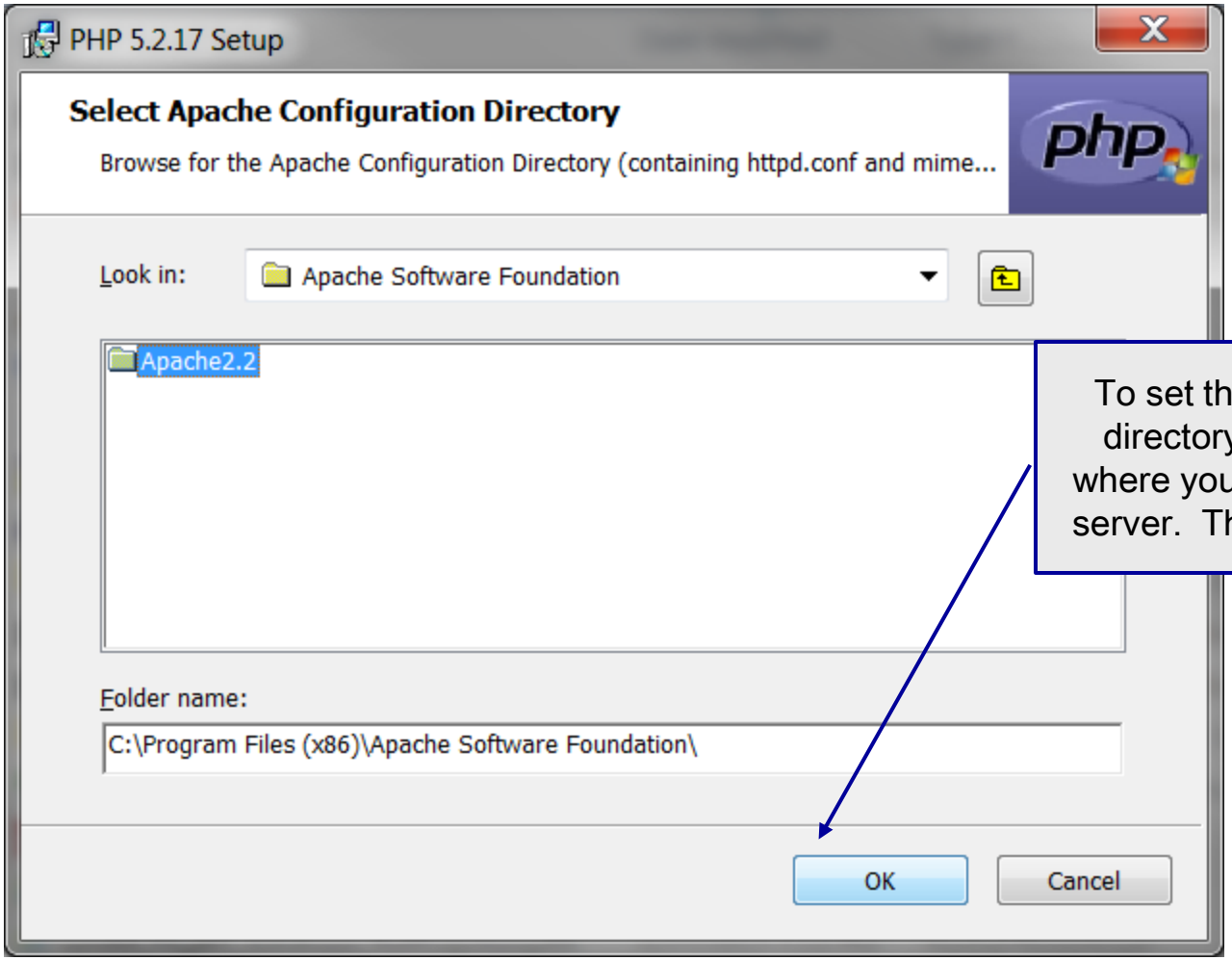
Set file path and click Next

Installing And Configuring Apache (cont.)



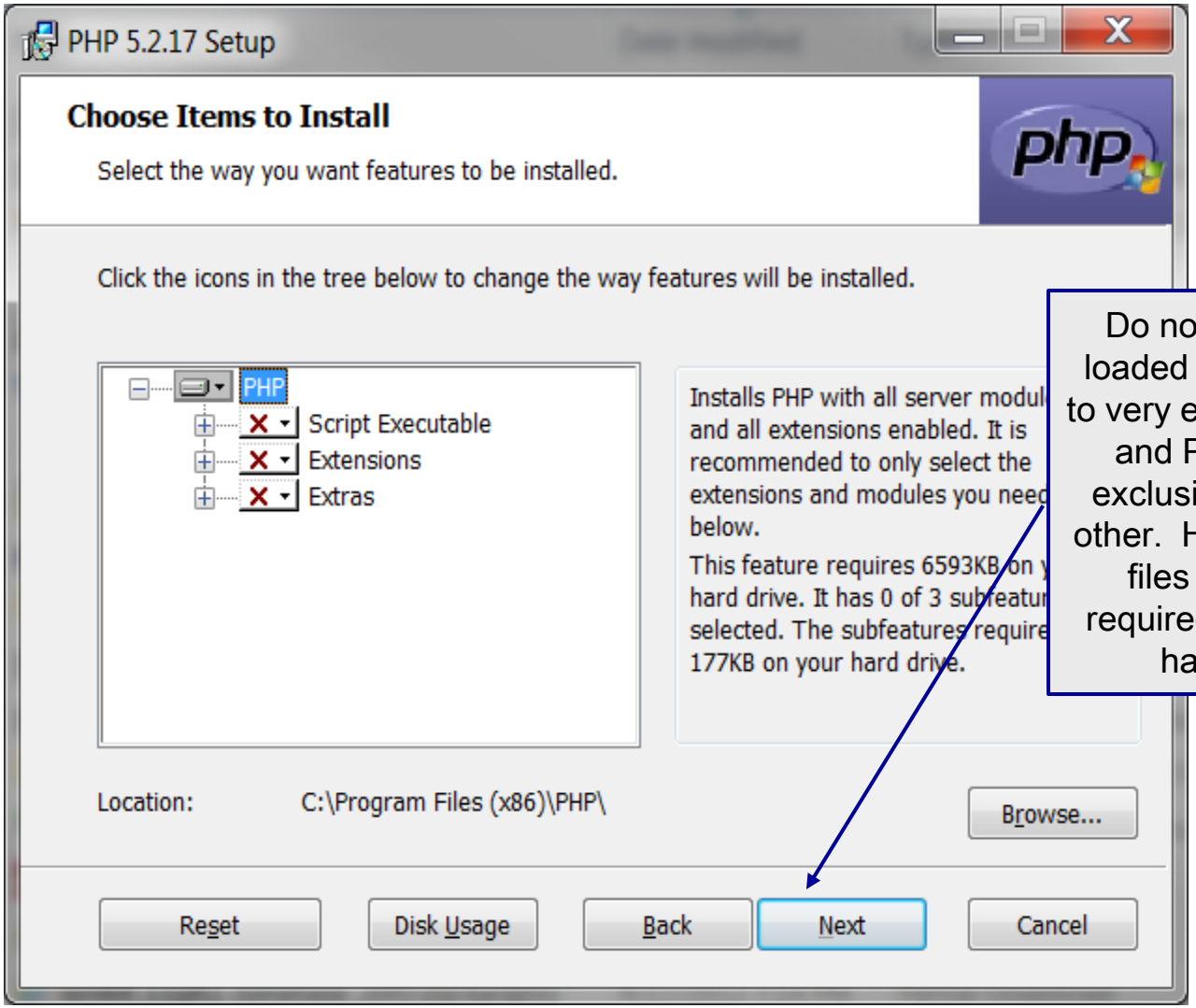
We'll be running PHP as a module within the Apache 2.2.x server so check this box. Then click Next.

Installing And Configuring Apache (cont.)



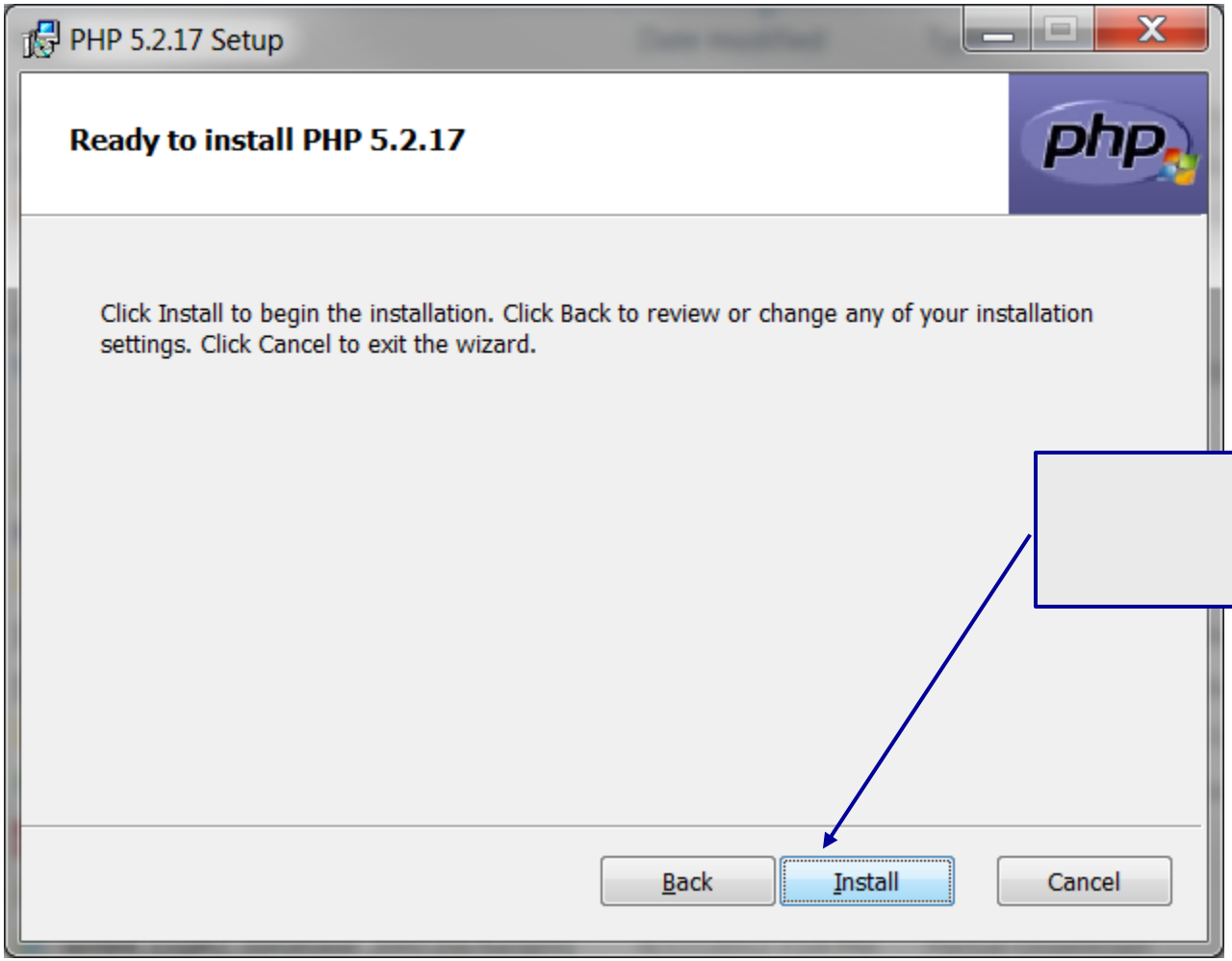
To set the Apache Configuration directory browse to the location where you setup the Apache HTTP server. Then click OK. Then Next.

Installing And Configuring Apache (cont.)



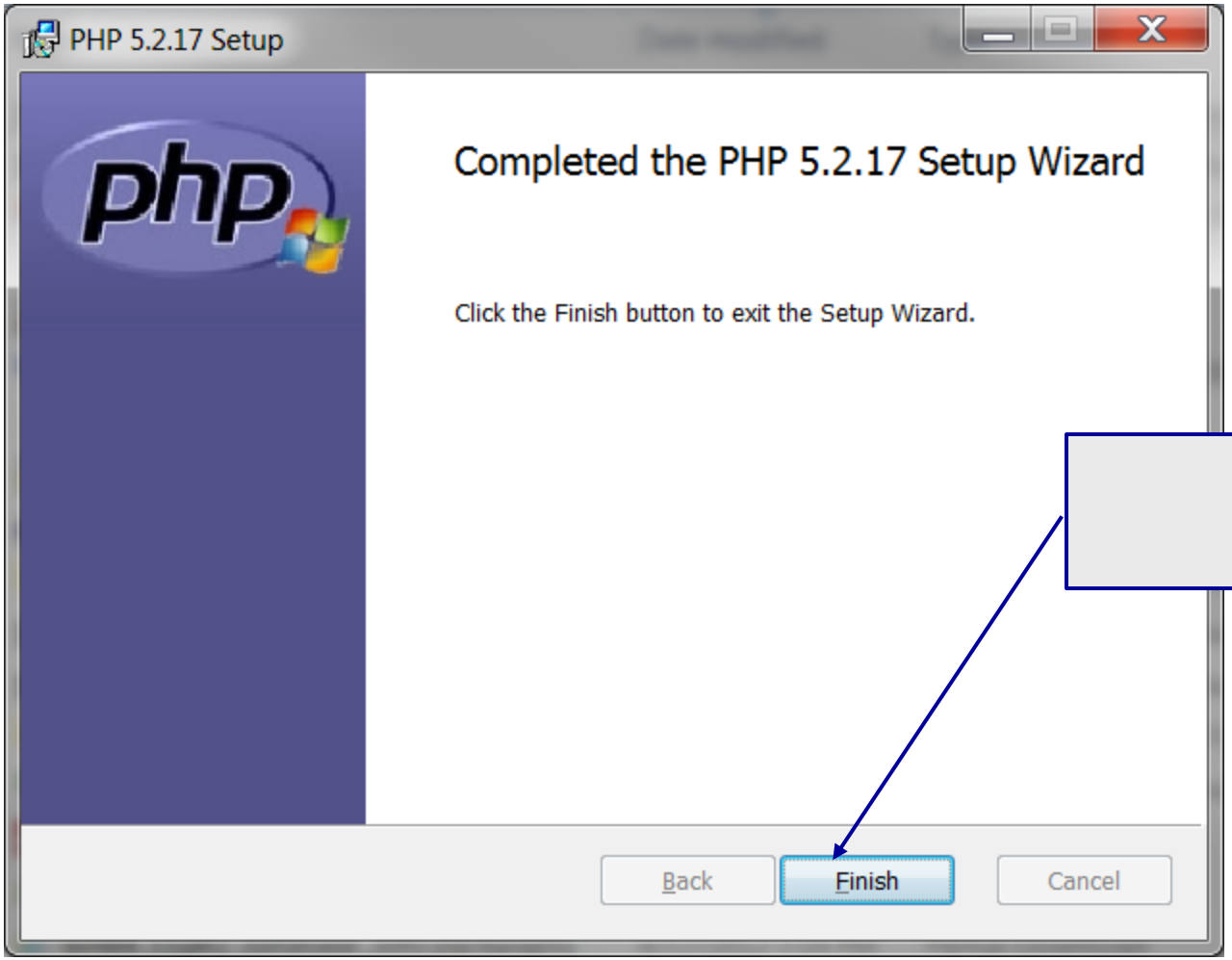
Do not allow all extensions to be loaded automatically – this will lead to very erratic behavior of your server and PHP as many are mutually exclusive and/or conflict with each other. Hand tuning the configuration files and extension libraries is required. (See the box on the right hand side of this screen.)

Installing And Configuring Apache (cont.)



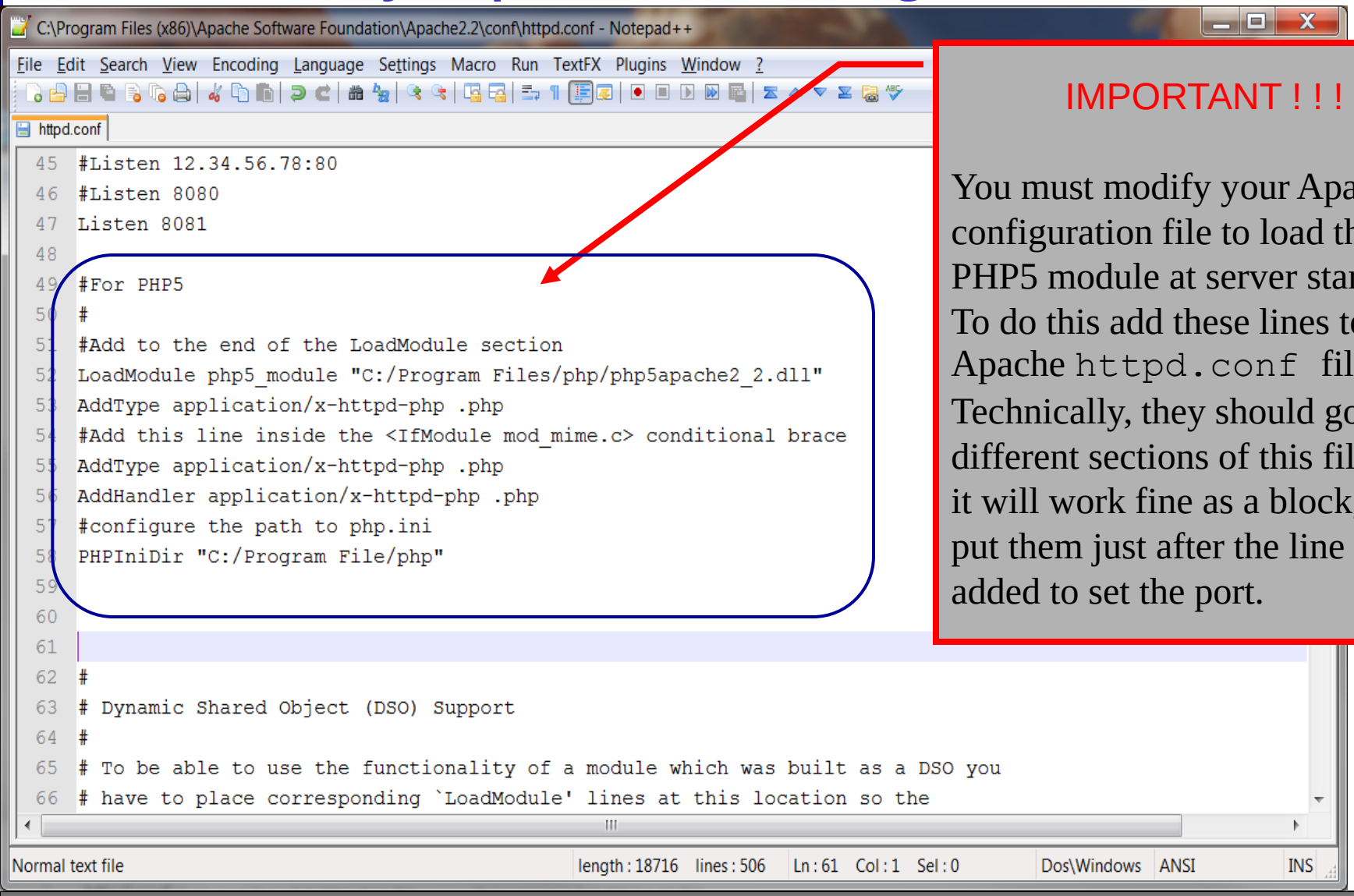
Click Install

Installing And Configuring Apache (cont.)



Click Finish

Modify Apache Configuration File



IMPORTANT ! ! !

You must modify your Apache configuration file to load the PHP5 module at server startup. To do this add these lines to your Apache `httpd.conf` file. Technically, they should go in different sections of this file, but it will work fine as a block, so put them just after the line you added to set the port.

A PHP Test Example

C:\Program Files (x86)\Apache Software Foundation\Apache2.2\htdocs\hello.php - Notepad++

File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?

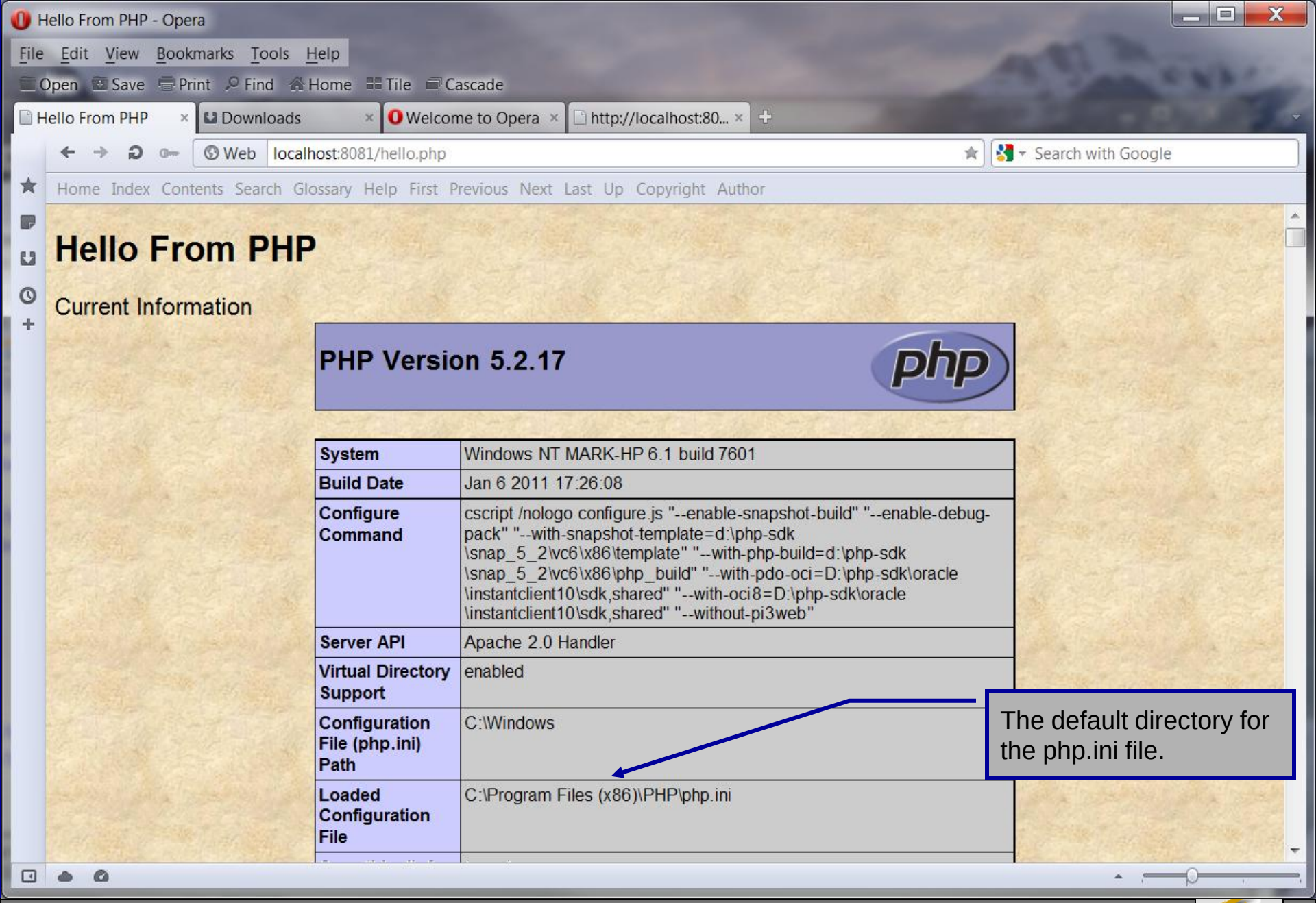
httpd.conf hello.php

```
1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2     "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3  <html xmlns="http://www.w3.org/1999/xhtml">
4  <head>
5      <title>Hello From PHP</title>
6  </head>
7  <body  style = "font-family: arial, sans-serif;
8         background-color: #856363"  background=image1.jpg>
9      <h1> Hello From PHP</h1>
10     <?php
11       print "Current Information";
12       phpInfo();
13     ?>
14 </body>
15 </html>
```

PHP Hypertext Preprocessor file | length : 424 | lines : 15 | Ln : 1 | Col : 1 | Sel : 0 | Dos\Windows | ANSI | INS

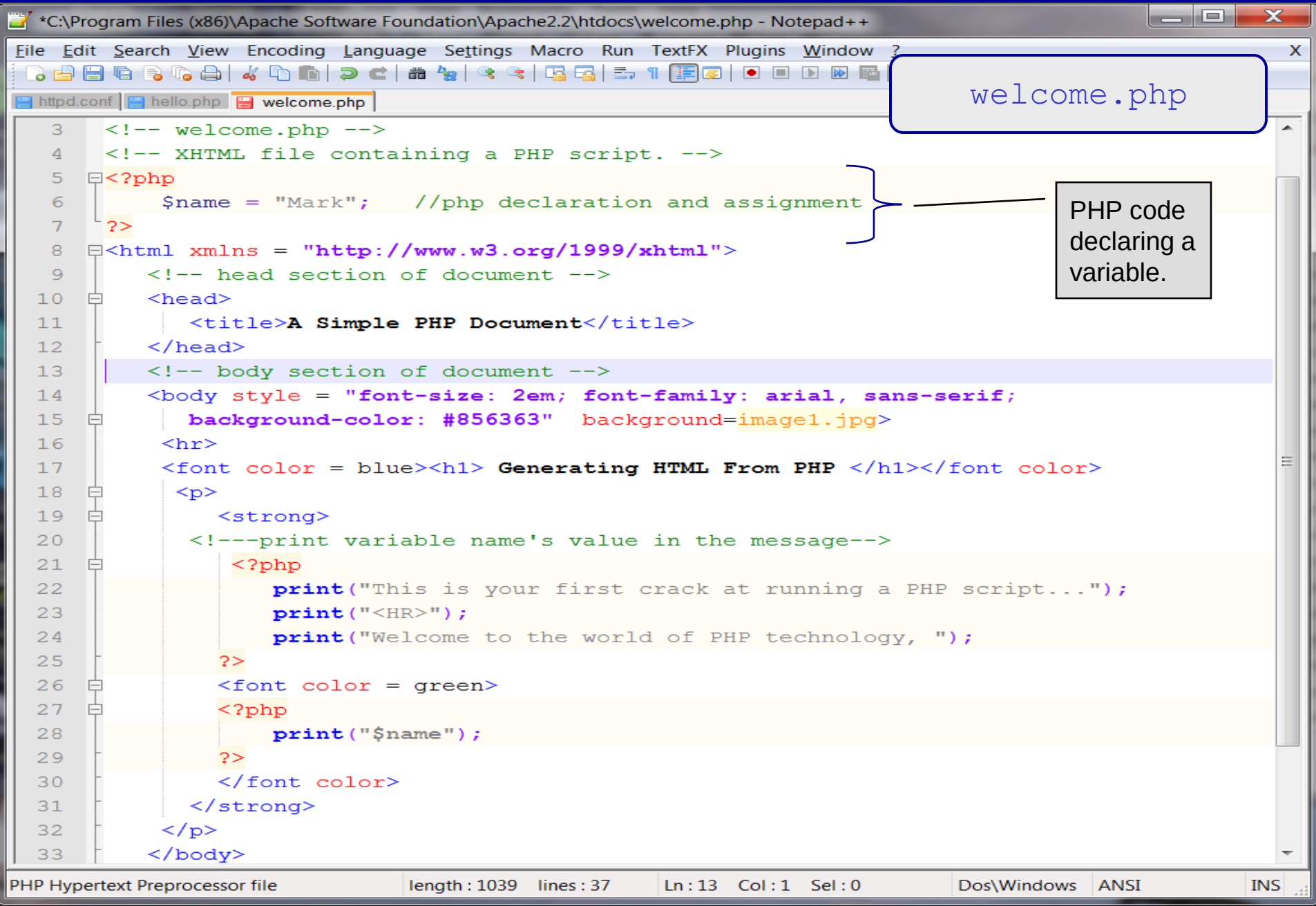
This is PHP

Create this file named `hello.php` and save it to the `htdocs` folder in the Apache server directory.
Then start your browser and enter the URL:
http://localhost:8081/hello.php
and you should see output similar to that shown on the next slide.


Hello From PHP - Opera
File Edit View Bookmarks Tools Help
Open Save Print Find Home Tile Cascade
Hello From PHP
Downloads
Welcome to Opera
http://localhost:80...
Web
localhost:8081/hello.php
Search with Google
Home Index Contents Search Glossary Help First Previous Next Last Up Copyright Author
Hello From PHP
Current Information
PHP Version 5.2.17
php
System
Windows NT MARK-HP 6.1 build 7601
Build Date
Jan 6 2011 17:26:08
Configure Command
cscript /nologo configure.js "--enable-snapshot-build" "--enable-debug-pack" "--with-snapshot-template=d:\php-sdk\snap_5_2\vc6\x86\template" "--with-php-build=d:\php-sdk\snap_5_2\vc6\x86\php_build" "--with-pdo-oci=D:\php-sdk\oracle\instantclient10\sdk,shared" "--with-oci8=D:\php-sdk\oracle\instantclient10\sdk,shared" "--without-pi3web"
Server API
Apache 2.0 Handler
Virtual Directory Support
enabled
Configuration File (php.ini) Path
C:\Windows
Loaded Configuration File
C:\Program Files (x86)\PHP\php.ini
The default directory for the php.ini file.

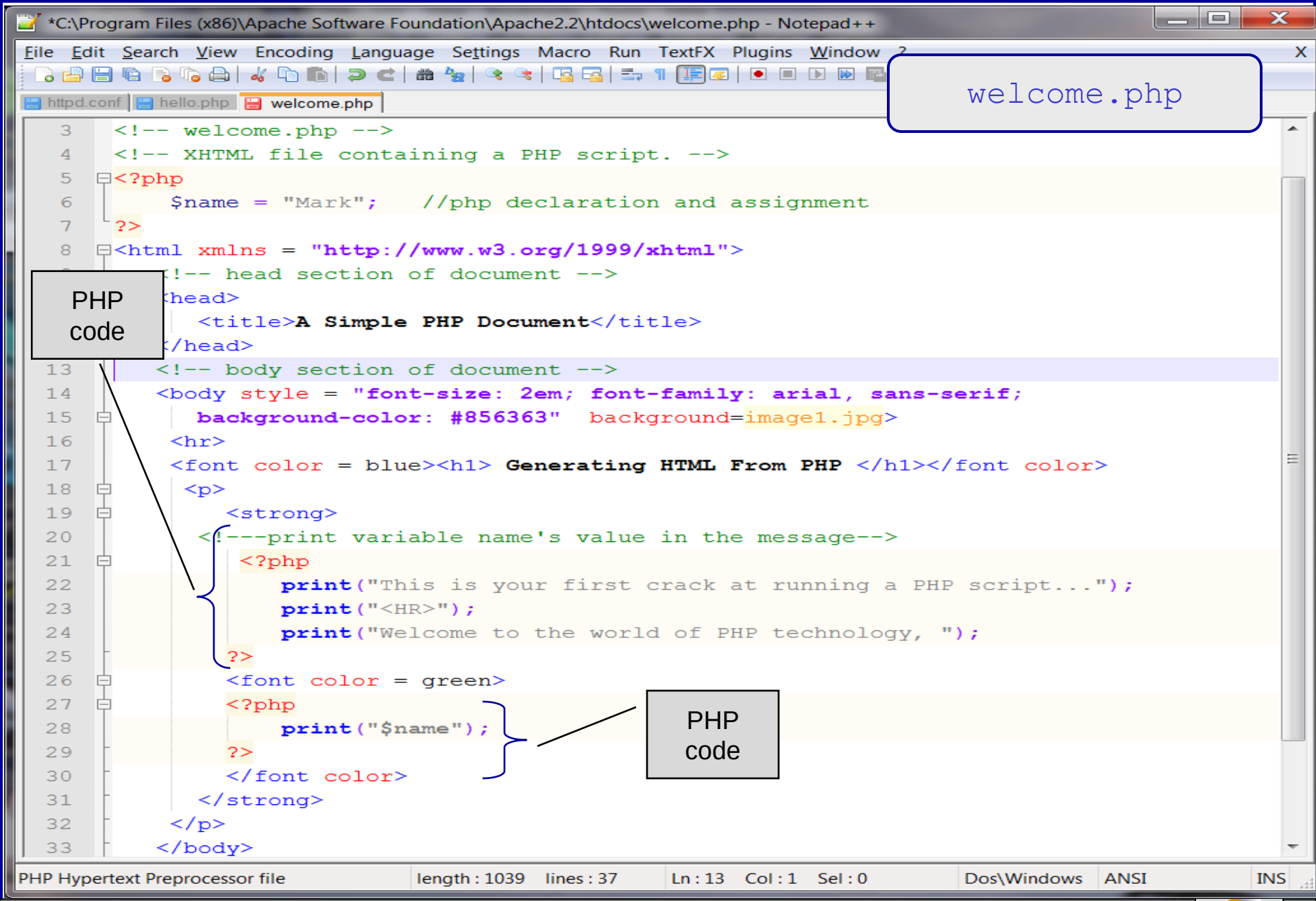
A Second PHP Example

- The following two pages illustrate another simple PHP "hello world" program.
- In PHP, code is inserted between the scripting delimiters **<?php** and **?>**. PHP code can be placed anywhere in HTML markup, as long as the code is enclosed in these scripting delimiters.
- Place all of your HTML and PHP files inside the `htdocs` directory of the Apache server directory.


*C:\Program Files (x86)\Apache Software Foundation\Apache2.2\htdocs\welcome.php - Notepad++
File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?
httpd.conf hello.php welcome.php
welcome.php
<!-- welcome.php -->
<!-- XHTML file containing a PHP script. -->
<?php
$name = "Mark"; //php declaration and assignment
?>
<html xmlns = "http://www.w3.org/1999/xhtml">
<!-- head section of document -->
<head>
<title>A Simple PHP Document</title>
</head>
<!-- body section of document -->
<body style = "font-size: 2em; font-family: arial, sans-serif;
background-color: #856363" background=image1.jpg>
<hr>
<font color = blue><h1> Generating HTML From PHP </h1>

<!---print variable name's value in the message-->
<?php
print("This is your first crack at running a PHP script...");
print("<HR>");
print("Welcome to the world of PHP technology, ");
?>
<font color = green>
<?php
print("$name");
?>

</body>
PHP code declaring a variable.
PHP Hypertext Preprocessor file length : 1039 lines : 37 Ln : 13 Col : 1 Sel : 0 Dos\Windows ANSI INS


*C:\Program Files (x86)\Apache Software Foundation\Apache2.2\htdocs\welcome.php - Notepad++
File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?
httpd.conf
hello.php
welcome.php
welcome.php
PHP code
PHP code
3 <!-- welcome.php -->
4 <!-- XHTML file containing a PHP script. -->
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15 background-color: #856363" background=image1.jpg>
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18
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20 <!---print variable name's value in the message-->
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27 <?php
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29 ?>
30
31
32
33 </body>
PHP Hypertext Preprocessor file
length : 1039 lines : 37
Ln : 13 Col : 1 Sel : 0
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Output from `welcome.php`

Viewing Client/Server Environment Variables

- Knowledge of a client's execution environment is useful to system administrators who want to provide client-specific information.
- Environment variables contain information about a script's environment, such as the client's web browser, the HTTP host and the HTTP connection.
  - The table on the next page summarizes some of the superglobal arrays defined by PHP.
- The HTML document on page 42 displays the values of the server's environment variables in a table. PHP stores the server variables and their values in the `$_SERVER` array. Iterating through the array allows one to view all of the server's environment variables.

Some Superglobal Environment Arrays

Variable Name	Description
$_SERVER	Data about the currently running server.
$_ENV	Data about the client's environment.
$_GET	Data posted to the server by the `get` method.
$_POST	Data posted to the server by the `post` method.
$_COOKIE	Data contained in cookies on the client's computer.
$GLOBALS	Array containing all global variables.

C:\Program Files (x86)\Apache Software Foundation\Apache2.2\htdocs\server.php - Notepad++

File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window X

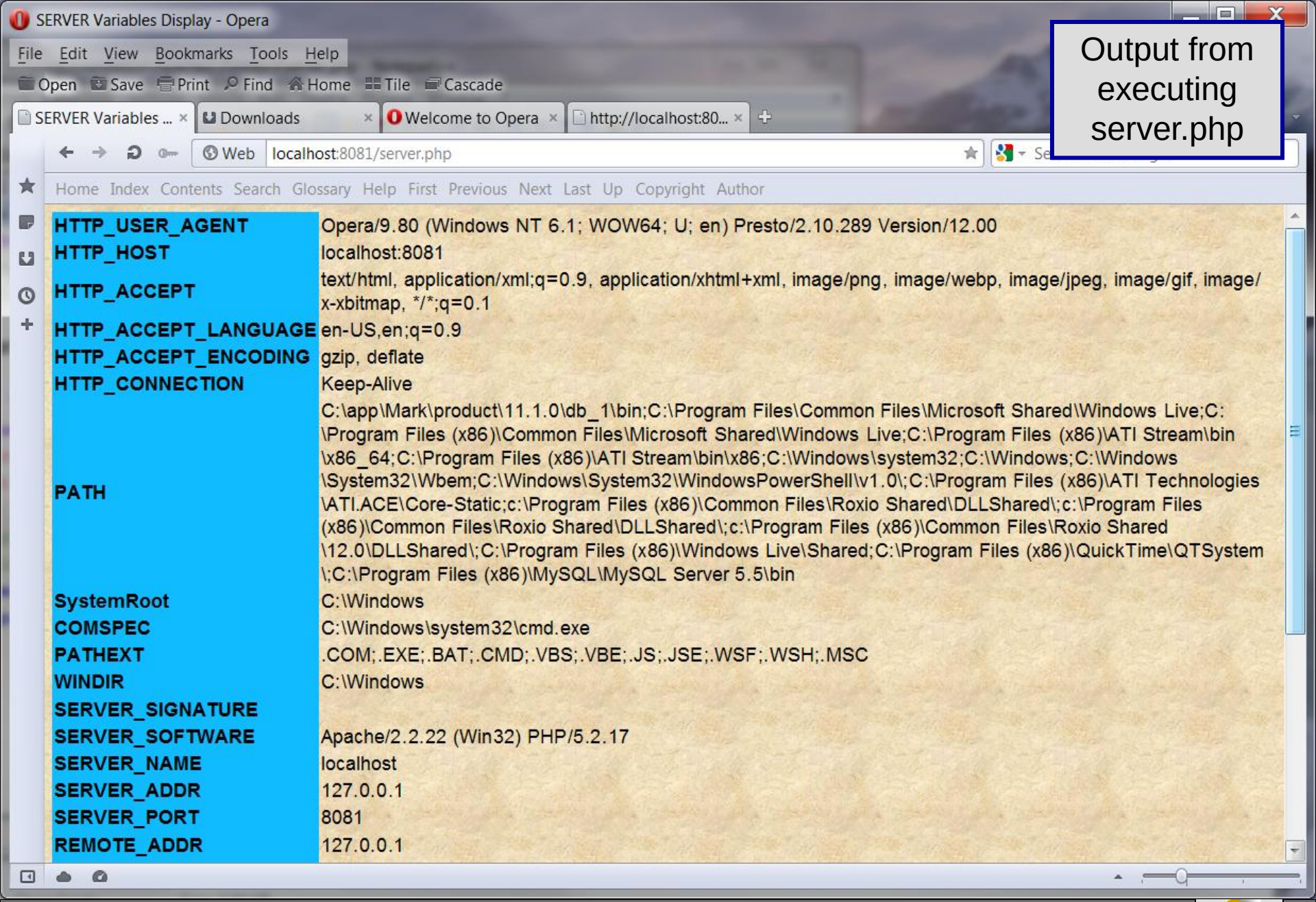
server.php

httpd.conf | hello.php | welcome.php | server.php

```
1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2     "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3  <html xmlns="http://www.w3.org/1999/xhtml">
4  <!-- server.php                          -->
5  <!-- Program to display $_SERVER variables -->
6  <head>
7      <title>SERVER Variables Display</title>
8  </head>
9  <body style = "font-family: arial, sans-serif;
10       background-color: #856363"  background=image1.jpg>
11     <table border = "0" cellpadding = "2" cellspacing = "0"
12          width = "100%">
13         <?php
14           // print the key and value for each element
15           // in the $_SERVER array
16           foreach ( $_SERVER as $key => $value )
17              print( "<tr><td bgcolor = \"#11bbff\">
18                   <strong>$key</strong></td>
19                   <td>$value</td></tr>" );
20         ?>
21     </table>
22 </body>
23 </html>
```

Iterate through the $_SERVER array to list all of the SERVER variables for the current server on which PHP is running.

PHP Hypertext Preprocessor file | length : 837 lines : 23 | Ln : 1 Col : 1 Sel : 0 | Dos\Windows ANSI INS



Output from executing server.php