

CNT 4714: Enterprise Computing Spring 2012

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 (I'm illustrating these notes with 5.2.17, released August 23, 2011, which is basically identical – see page 23) 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.
- All of the examples we'll be looking at use the previous stable version which is compatible with the Apache HTTP Server. This is version 5.2.17 and it was released January 6, 2011.



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 XHTML documents. This allows the document author to write XHTML 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.

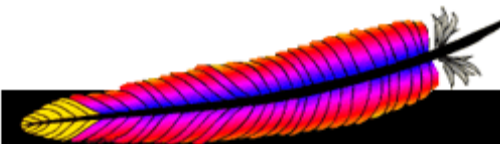


Welcome! - The Apache HTTP Server Project - Windows Internet Explorer

http://httpd.apache.org/

File Edit View Favorites Tools Help

Welcome! - The Apache HTTP Server Project



Apache HTTP SERVER PROJECT

The Number One HTTP Server On The Internet

Essentials

- [About](#)
- [License](#)
- [FAQ](#)
- [Security Reports](#)

Download!

- [from a mirror](#)

Documentation

- [Version 2.3](#) (Beta)
- [Version 2.2](#)

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 15th birthday as a project this February.

The Apache HTTP Server ("httpd") is a project of [The Apache Software Foundation](#).

Apache HTTP Server 2.2.21 Released 2011-09-13

The Apache HTTP Server Project is proud to [announce](#) the release of version 2.2.21 of the Apache HTTP Server ("httpd"). This version is principally a security and bugfix release. Notably, it resolves

http://httpd.apache.org/

Internet | Protected Mode: Off

Start | Welcome! - The Apache ... | CNN.com - Breaking New...

To direct input to this virtual machine, press Ctrl+G.

vmware



Mark - TestBed Server - VMware Player File Virtual Machine Help

Download - The Apache HTTP Server Project - Windows Internet Explorer

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

Download - The Apache HTTP Server Project

Apache HTTP SERVER PROJECT

Downloading the Apache HTTP Server

Essentials

- [About](#)
- [License](#)
- [FAQ](#)
- [Security Reports](#)

Download!

- [from a mirror](#)

Documentation

- [Version 2.3 \(Beta\)](#)
- [Version 2.2](#)

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 Select 2.2.21 lder releases, including the 1.3 family of releases, are available from the [archive download site](#).

Stable Release:

- [2.2.21](#) (released 2011-09-13)

Beta Release:

- [2.3.14-beta](#) (released 2011-08-09)

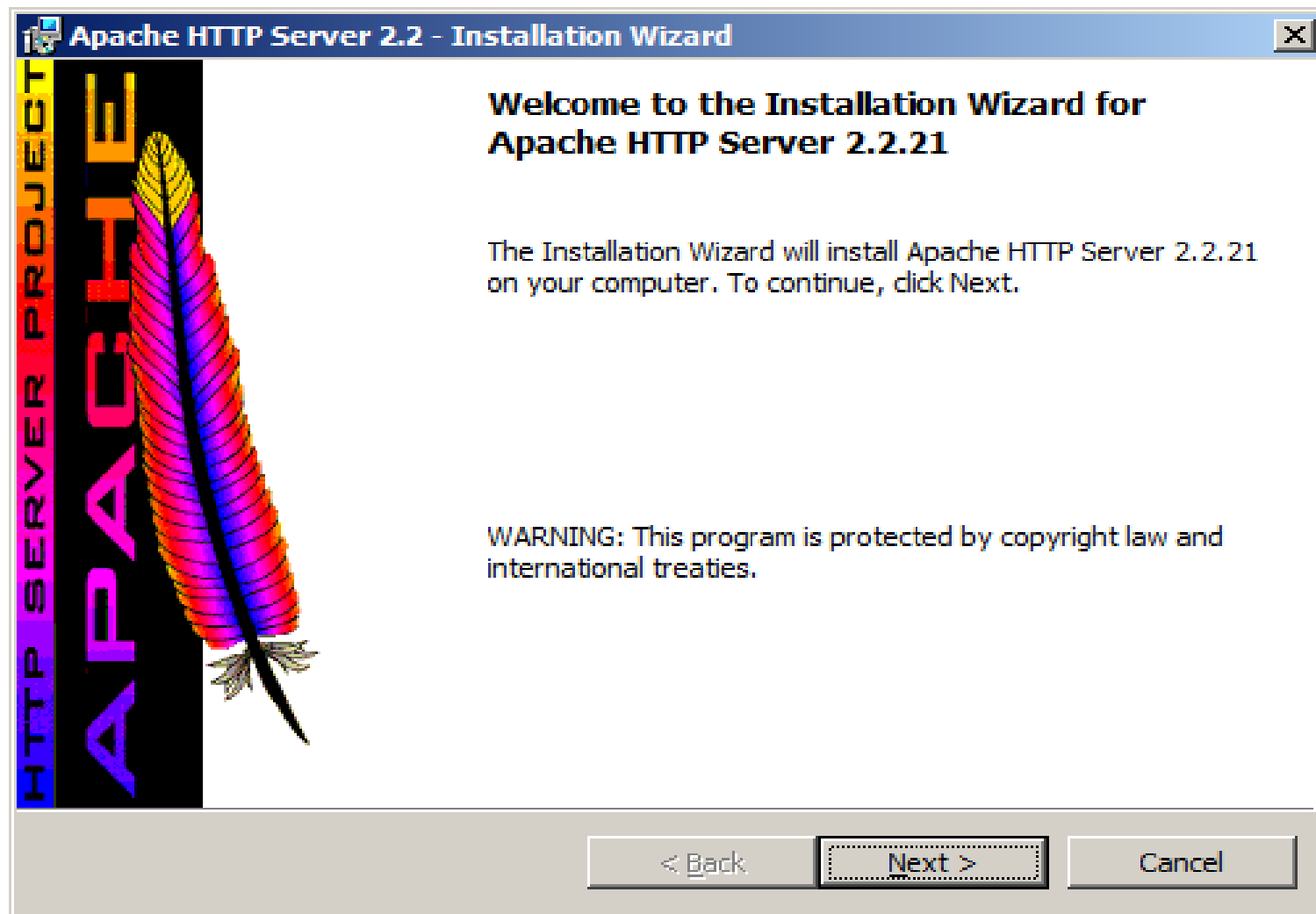
Start | Download - The Apac... | CNN.com - Breaking New... | 2:11 PM

To direct input to this virtual machine, press Ctrl+G.

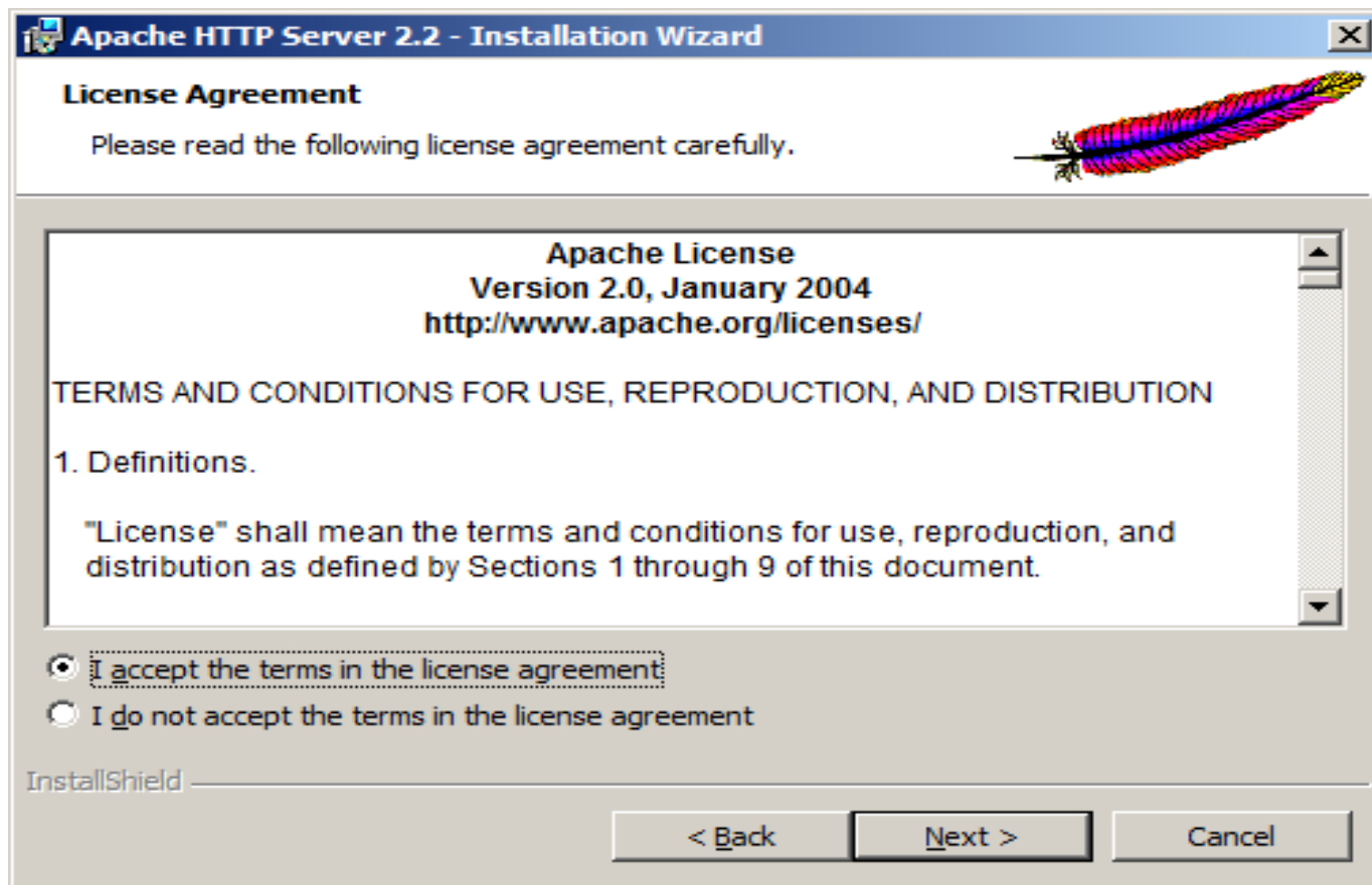
vmware



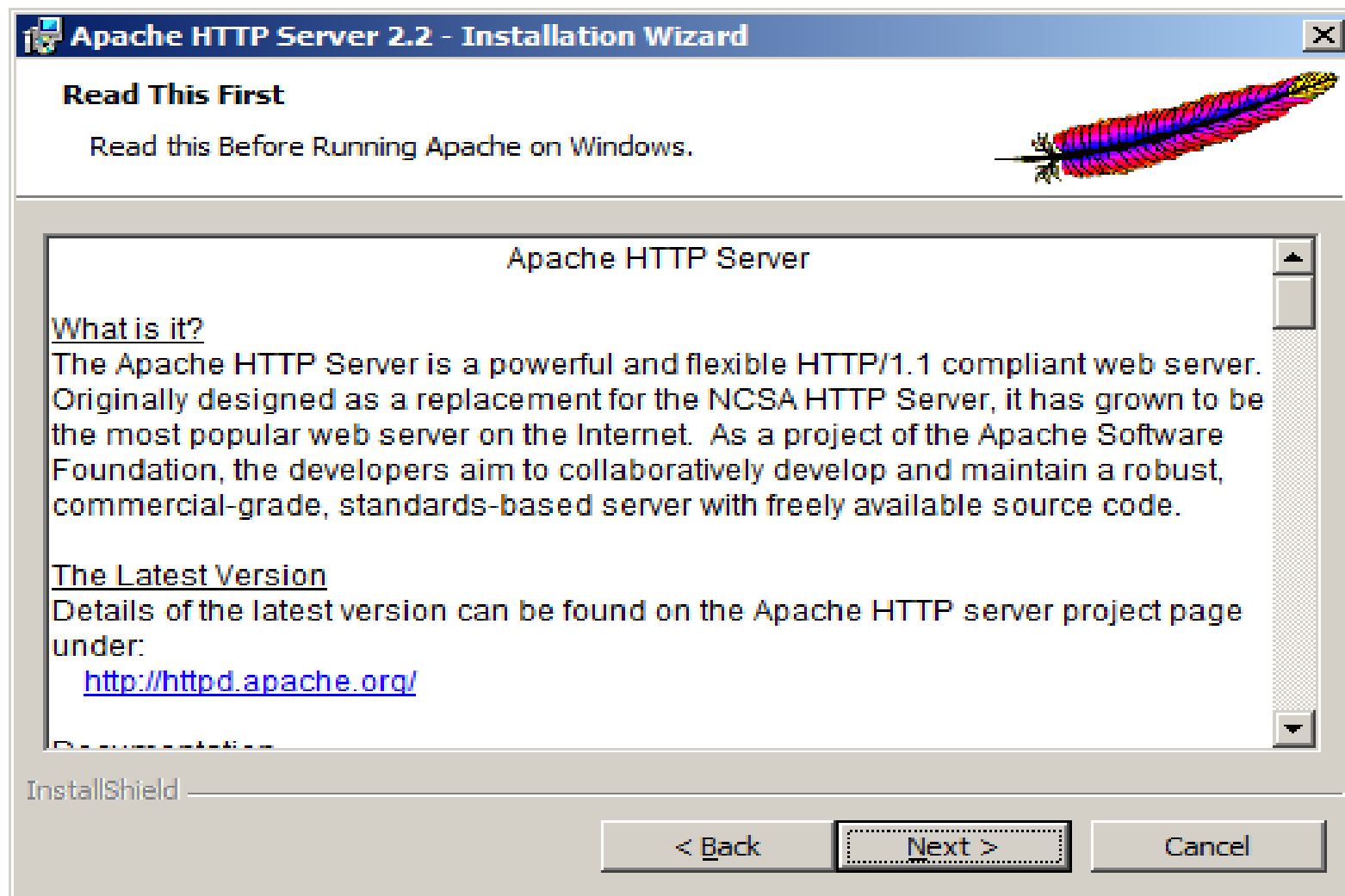
Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)

Apache HTTP Server 2.2 - Installation Wizard

Server Information

Please enter your server's information.

Network Domain (e.g. somenet.com)
WIN-OGZ0HXCQGAX.localdomain

Server Name (e.g. www.somenet.com):
WIN-OGZ0HXCQGAX.localdomain

Administrator's Email Address (e.g. webmaster@somenet.com):
admin@WIN-OGZ0HXCQGAX.localdomain

Install Apache HTTP Server 2.2 programs and shortcuts for:

for All Users, on Port 80, as a Service -- Recommended.

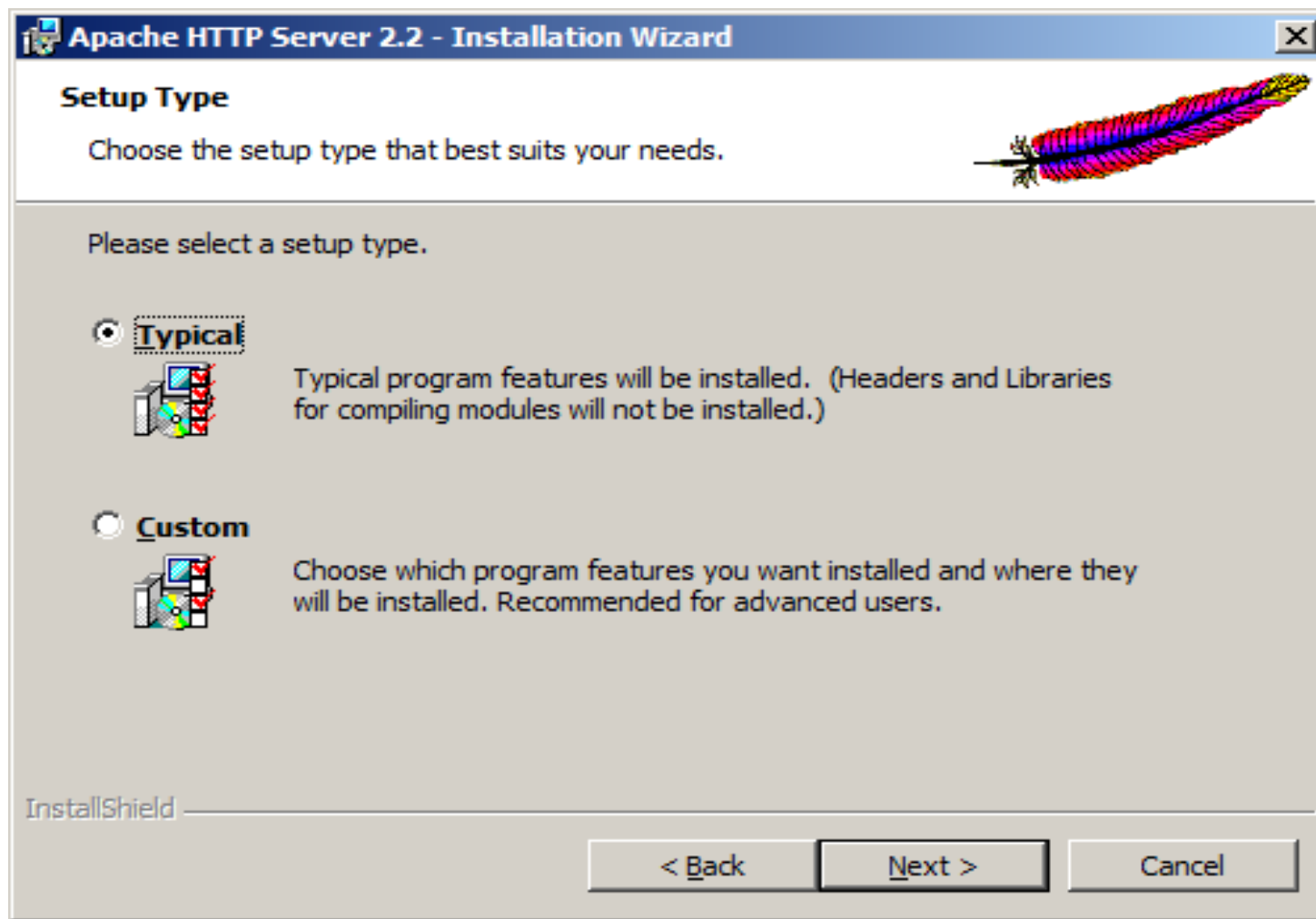
only for the Current User, on Port 8080, when started Manually.

InstallShield

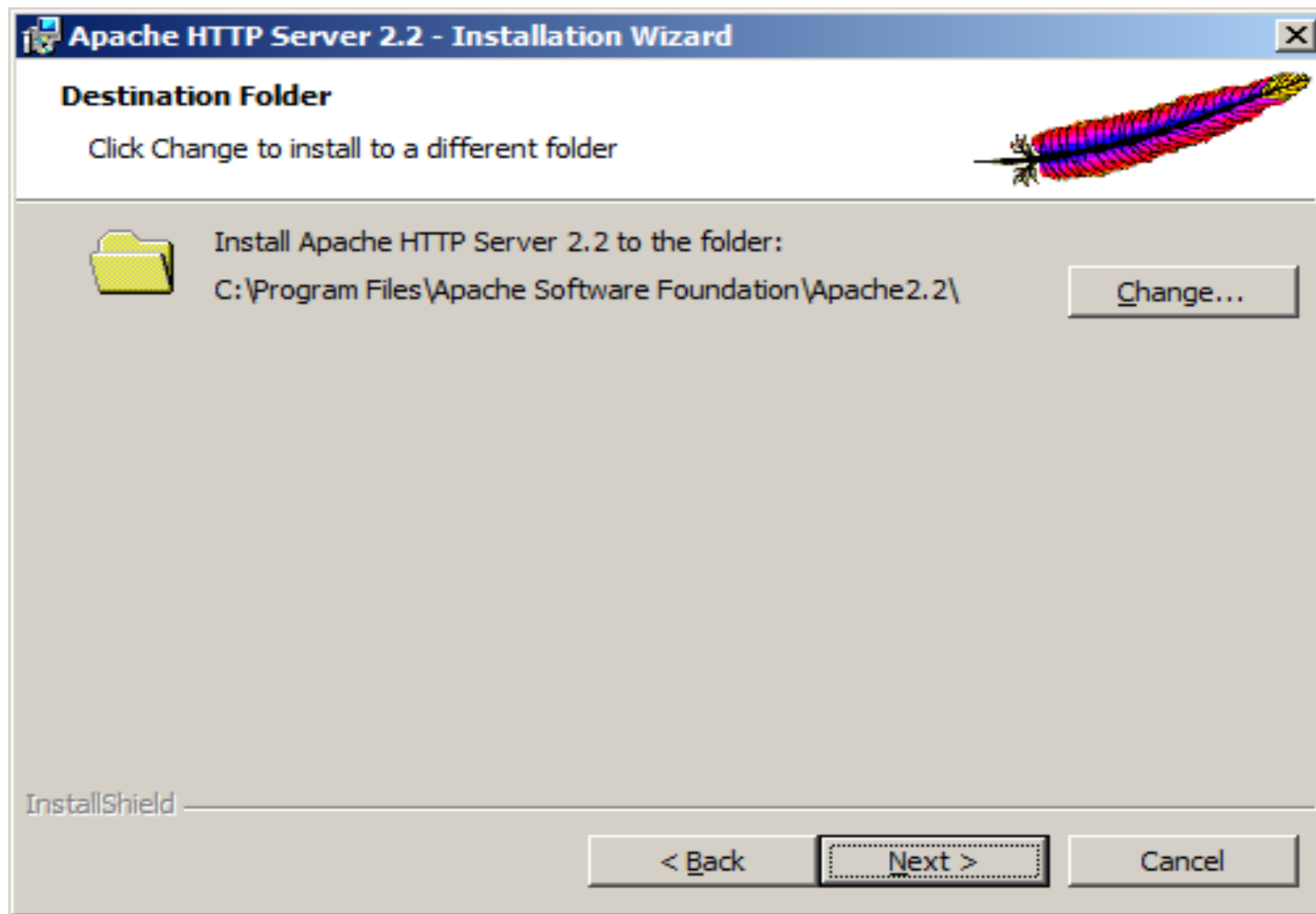
< Back Next > Cancel



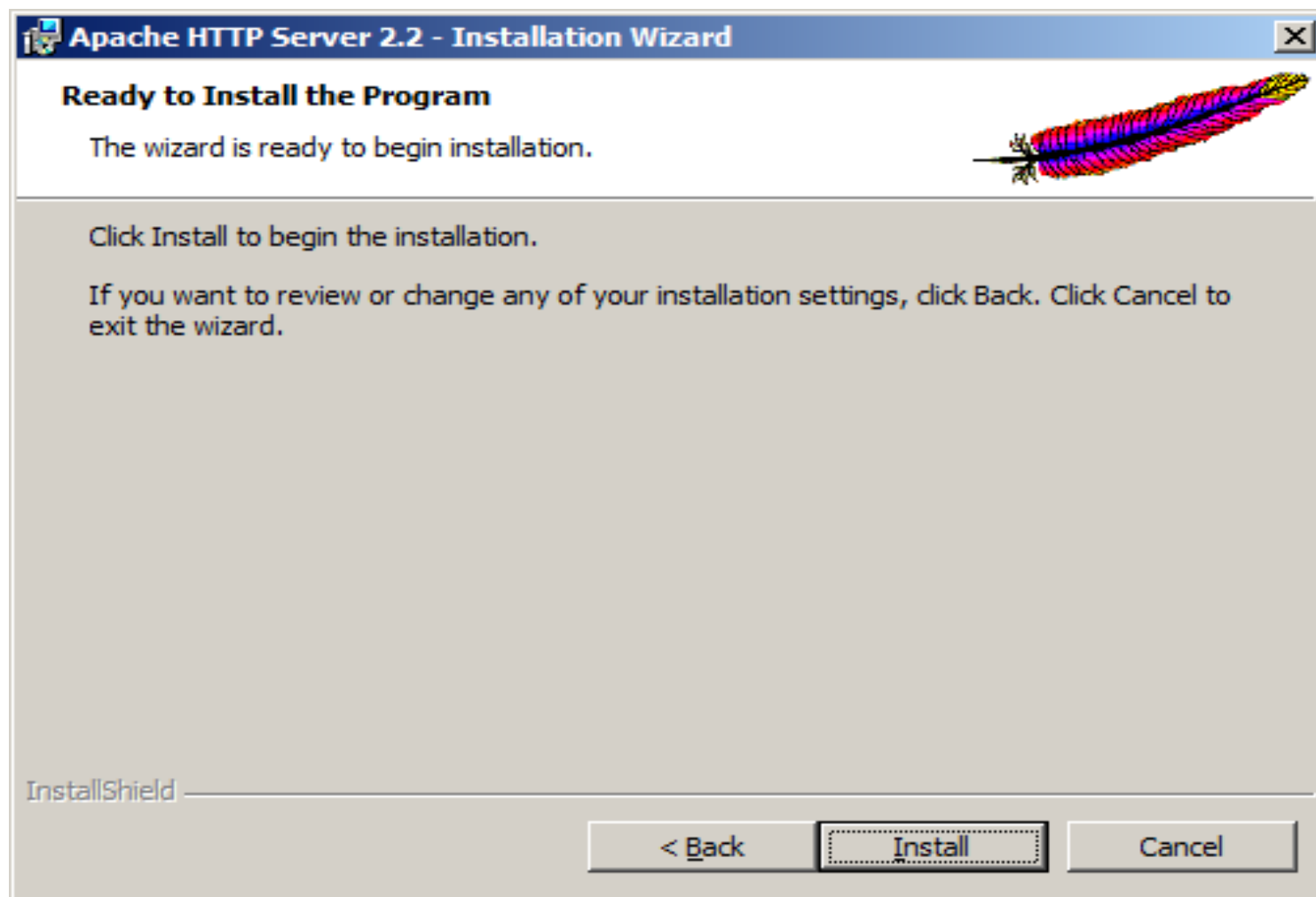
Installing And Configuring Apache (cont.)



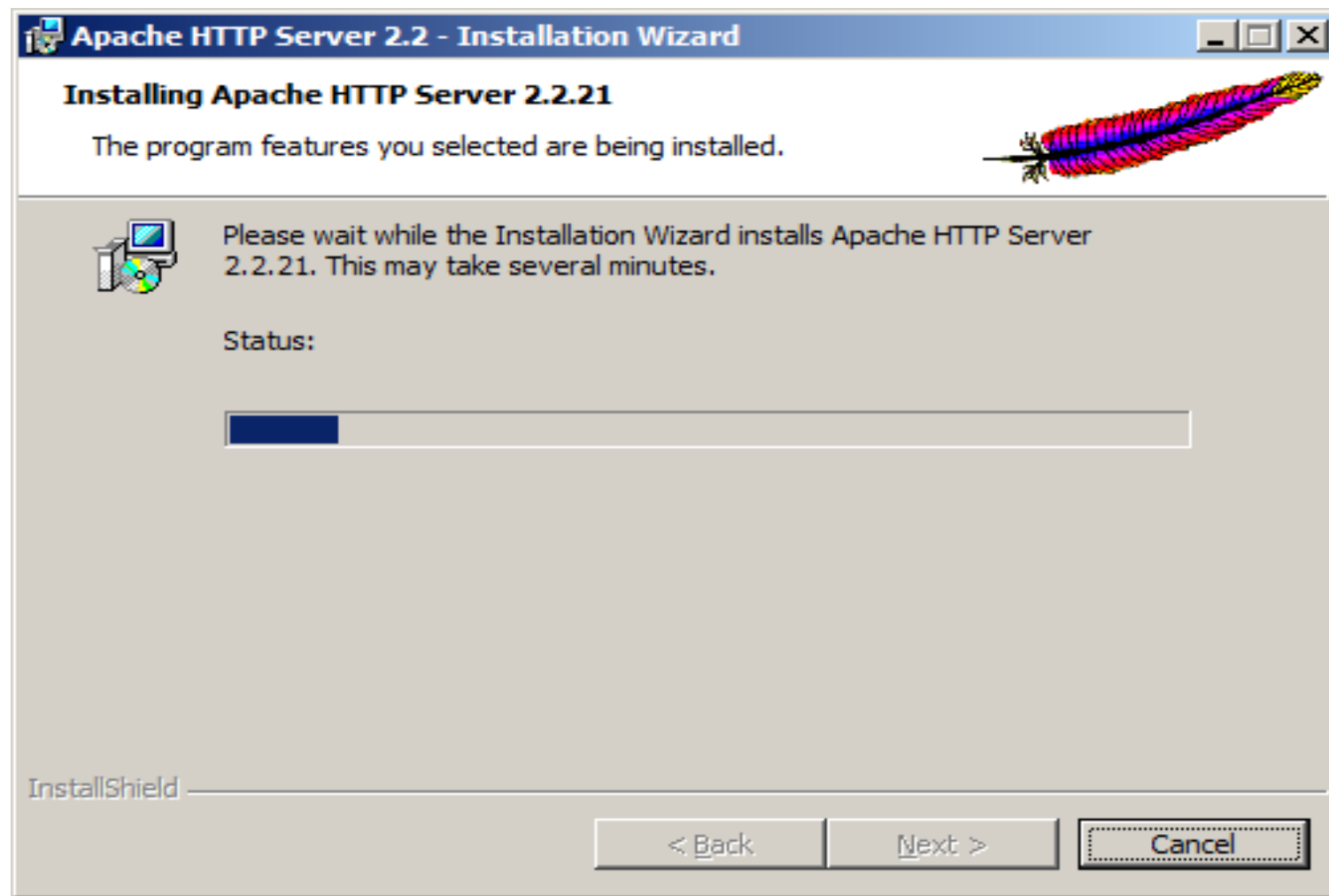
Installing And Configuring Apache (cont.)



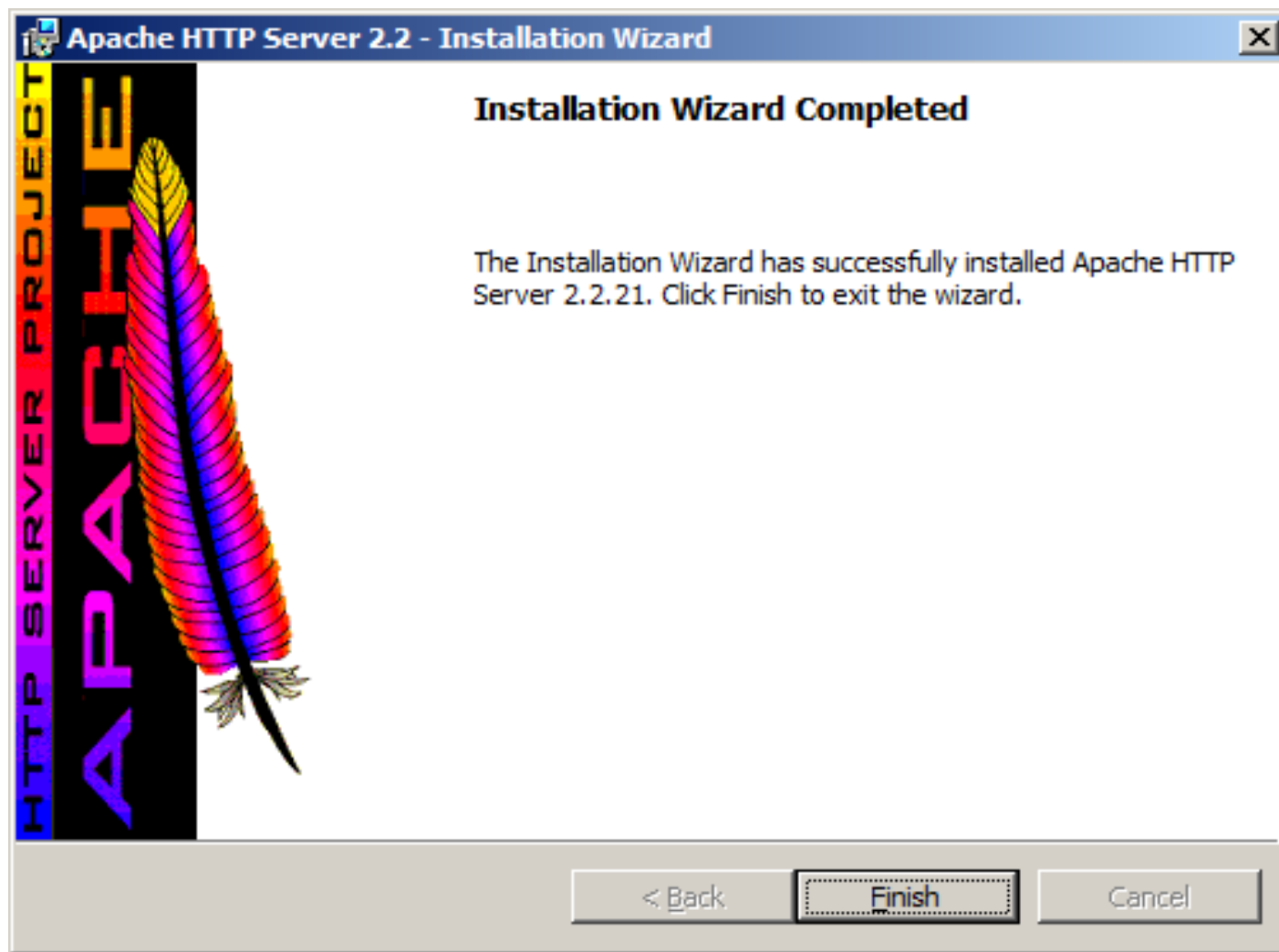
Installing And Configuring Apache (cont.)



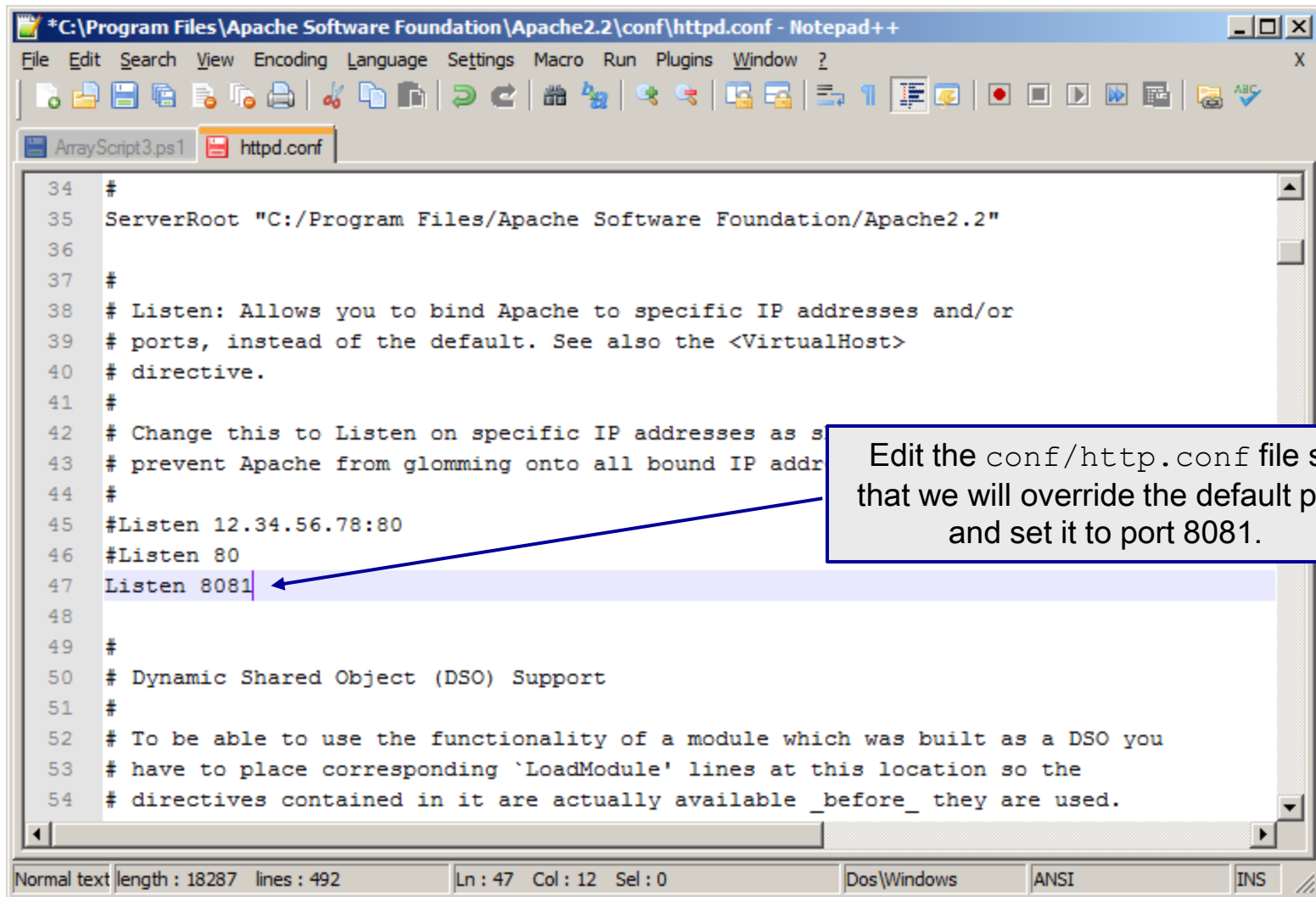
Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)



Installing And Configuring Apache (cont.)



The screenshot shows a Notepad++ window titled '*C:\Program Files\Apache Software Foundation\Apache2.2\conf\httpd.conf - Notepad++'. The window contains the following text:

```
34 #
35 ServerRoot "C:/Program Files/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 s
43 # prevent Apache from glomming onto all bound IP addr
44 #
45 #Listen 12.34.56.78:80
46 #Listen 80
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.
```

A blue arrow points from a text box to the line 'Listen 8081' in the code. The text box contains the following text:

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

The status bar at the bottom of the Notepad++ window shows: Normal text | length : 18287 | lines : 492 | Ln : 47 | Col : 12 | Sel : 0 | Dos\Windows | ANSI | INS



The screenshot shows an Opera browser window with the title "http://localhost:8081/ - Opera". The address bar contains "localhost:8081" and the search bar says "Search with Google". The main content area displays "It works!". A blue arrow points from a text box on the right to the text "It works!". The taskbar at the bottom shows the Start button, several application icons, and a taskbar button for "http://localhost:8081...". A tooltip at the bottom left says "To direct input to this virtual machine, press Ctrl+G." The VMware logo is in the bottom right corner of the window.

It works!

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 5.3.3) can be downloaded from www.php.net. Note however, that since we are using Apache that we will not be able to use the latest version of PHP, but need to go back to an earlier stable version. Be sure you are installing the correct version of PHP 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.



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PHP: Hypertext Preprocessor - Windows Internet Explorer

http://www.php.net/

File Edit View Favorites Tools Help

PHP: Hypertext Preprocessor

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 the [introductory tutorial](#). After that, check out the online [manual](#), and the example archive sites and some of the other resources available in the [links section](#).

Ever wondered how popular PHP is? see the [Netcraft](#)

Upcoming conferences: [PHP'n Rio 11](#) [PHP Barcelona 2011](#)

PHP 5.4 beta2 released

[26-Oct-2011] The PHP development team is proud to announce the second [beta release](#) of PHP 5.4. PHP 5.4 includes new language features and removes several legacy (deprecated) behaviours. Windows binaries can be downloaded from the [Windows QA site](#).

THIS IS A DEVELOPMENT PREVIEW - DO NOT USE IT IN PRODUCTION!

Please help us to identify bugs by testing new features and looking for unintended backward compatibility breaks, so we can fix the problems and fully document intended changes before PHP 5.4.0 is released. Report findings to the [QA mailing list](#) and/or the [PHP bug tracker](#).

This release includes numerous bug fixes and improvements since the

Stable Releases

[Current PHP 5.3 Stable: 5.3.8](#)

Release Candidates

[5.4.0beta2 \(20 October 2011\)](#)

Upcoming Events [\[add\]](#)

October

Conferences

28. [Adobe Tech Summit 2011](#)

28. [PHP Barcelona Conference](#)

Internet | Protected Mode: Off | 100%

Start | PHP: Hypertext Prepr...

To direct input to this virtual machine, press Ctrl+G.

vmware

PHP Home page



http://www.php.net/downloads.php

PHP Download Page

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:

Complete Source Code

- [PHP 5.3.8 \(tar.bz2\)](#) [10,928Kb] - 23 August 2011
md5: 704cd414a0565d905e1074ffdc1fadfb
- [PHP 5.3.8 \(tar.gz\)](#) [14,443Kb] - 23 August 2011
md5: f4ce40d5d156ca66a996dbb8a0e7666a

PHP 5.2.17 (Old stable)

This version is no longer supported by PHP.net

Complete Source Code

- [PHP 5.2.17 \(tar.bz2\)](#) [8,879Kb] - 06 January 2011
md5: b27947f3045220faf16e4d9158cbfe13
- [PHP 5.2.17 \(tar.gz\)](#) [11,525Kb] - 06 January 2011
md5: 04d321d5aeb9d3a051233dbd24220ef1

Windows Binaries

For the Windows binaries and installer, see <http://windows.php.net/download/>.

Click here to go the download page for Windows machines

- AS/400
- Mac OS X
- Novell NetWare
- OS/2
- RISC OS
- SGI IRIX 6.5.x
- Solaris (SPARC, INTEL)
- Solaris OpenCSW packages
- Redhat/CentOS Binaries

Development and archive versions

Regular source and binary snapshots are available from [snaps.php.net](#). These

Done Internet | Protected Mode: Off 100%

Start PHP: Downloads - ... CNT4714 *C:\Program Files\Ap... SERVER Variables Dis... 3:12 PM

To direct input to this virtual machine, press Ctrl+G.



PHP For Windows: Binaries and sources Releases - Windows Internet Explorer

http://windows.php.net/download/

File Edit View Favorites Tools Help

★ Favorites Suggested Sites Web Slice Gallery

PHP For Windows: Binaries and sources Releases

■ [Debug Pack](#) [7.91MB]
sha1: bc31af9407d81135617969de4a3f5ae452acb76e

VC9 x86 Thread Safe (2011-Aug-23 12:01:10)

■ [Zip](#) [15.06MB]
sha1: 364274fb75af73c649e37ae90282ad4c34ac6504

■ [Installer](#) [38.43MB]
sha1: 862212ecf6e84ea23234ef287d75a46c69d94b02

■ [Debug Pack](#) [8.25MB]
sha1: 815ed78bfd2342d8b2711ea6290ccaf774481cca

PHP 5.2 (5.2.17)

Done Internet | Protected Mode: Off 100%

Start PHP For Windows: Bin... Downloads PHP 5.3.8 Setup 2:32 PM

To direct input to this virtual machine, press Ctrl+G. vmware

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

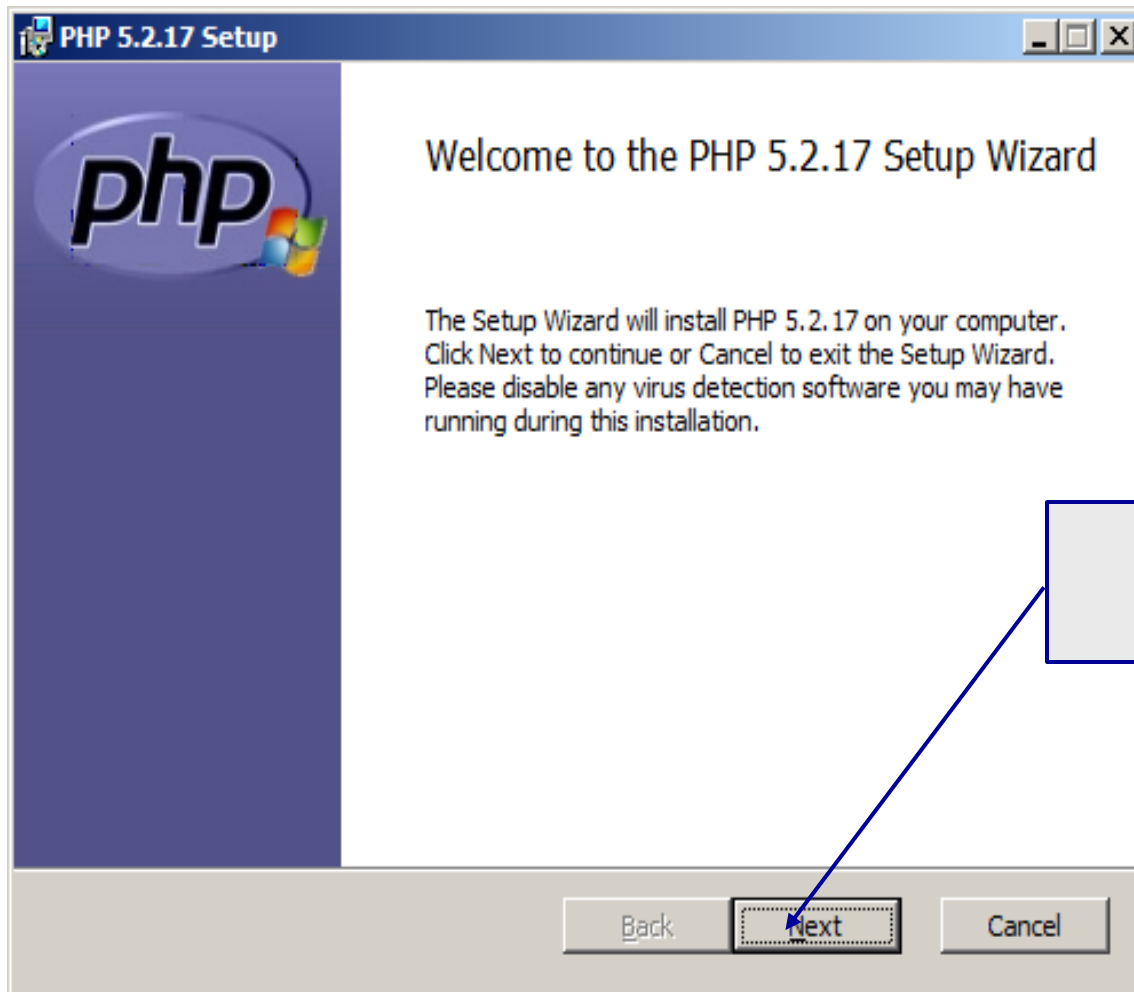
VC6 Versions are compiled with the legacy Visual Studio 6 compiler

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](#)

Scroll down this page to get to the proper version for Click here to go the download page for Windows machines



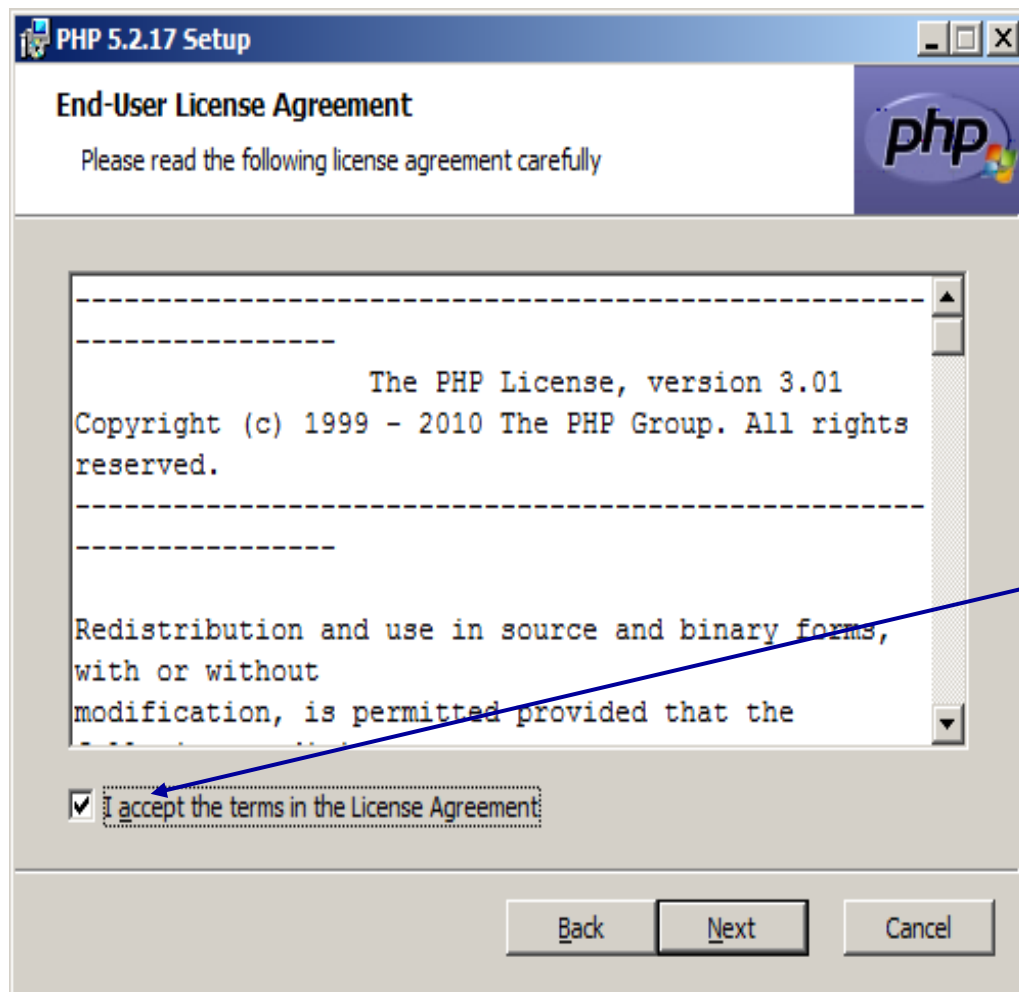
Installing And Configuring PHP (cont.)



Click Next



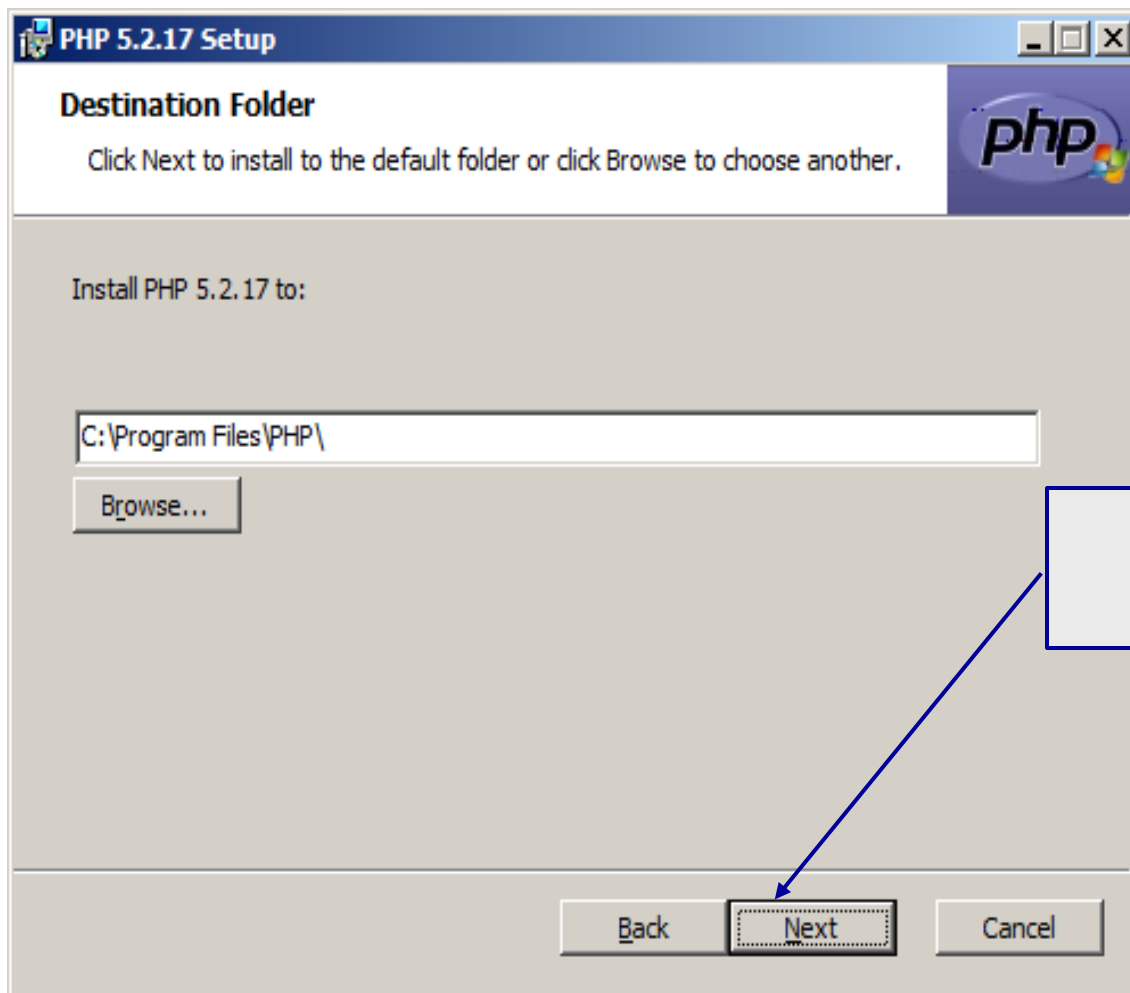
Installing And Configuring Apache (cont.)



Check accept terms box and click Next.



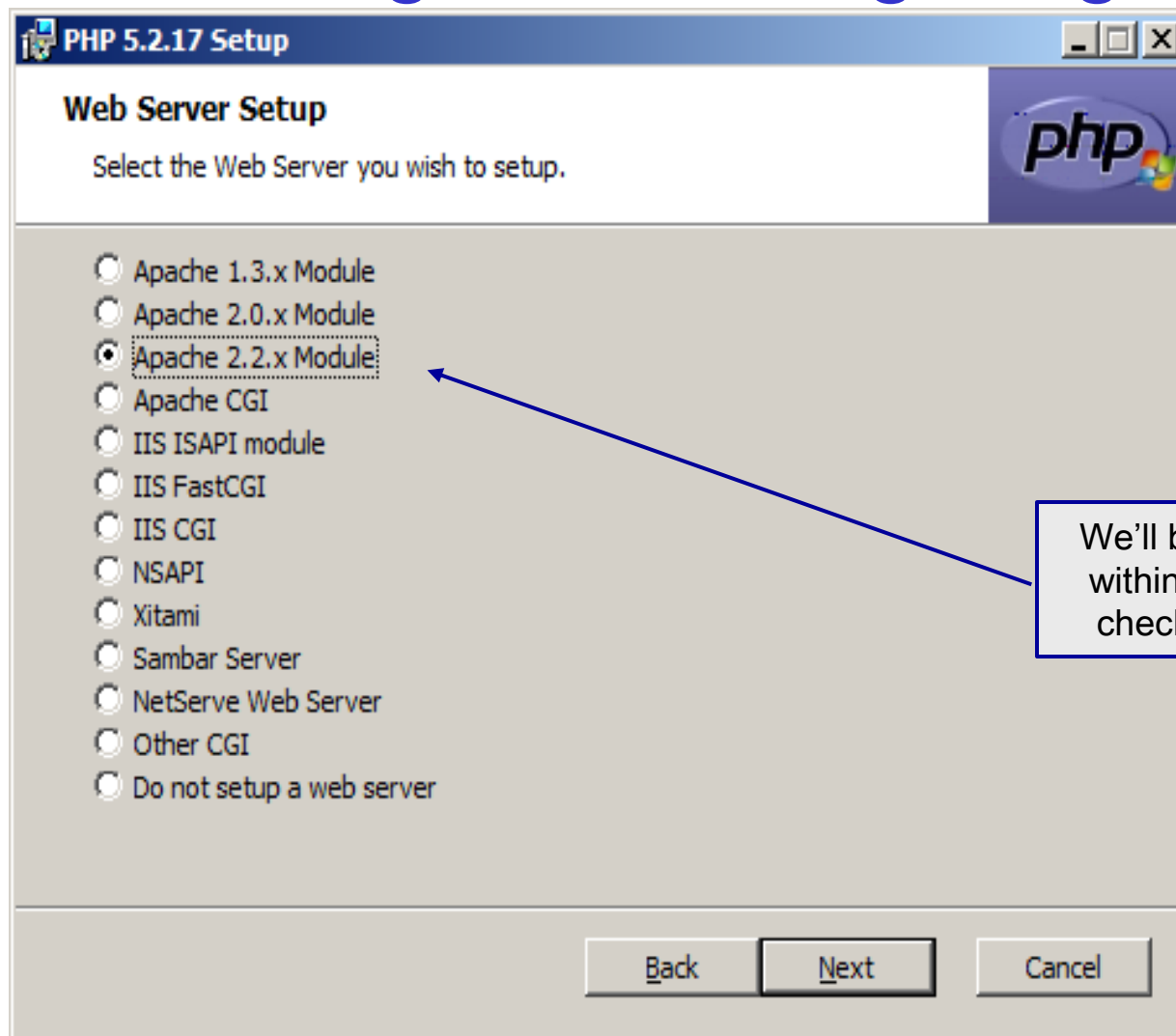
Installing And Configuring Apache (cont.)



Set file path and click Next



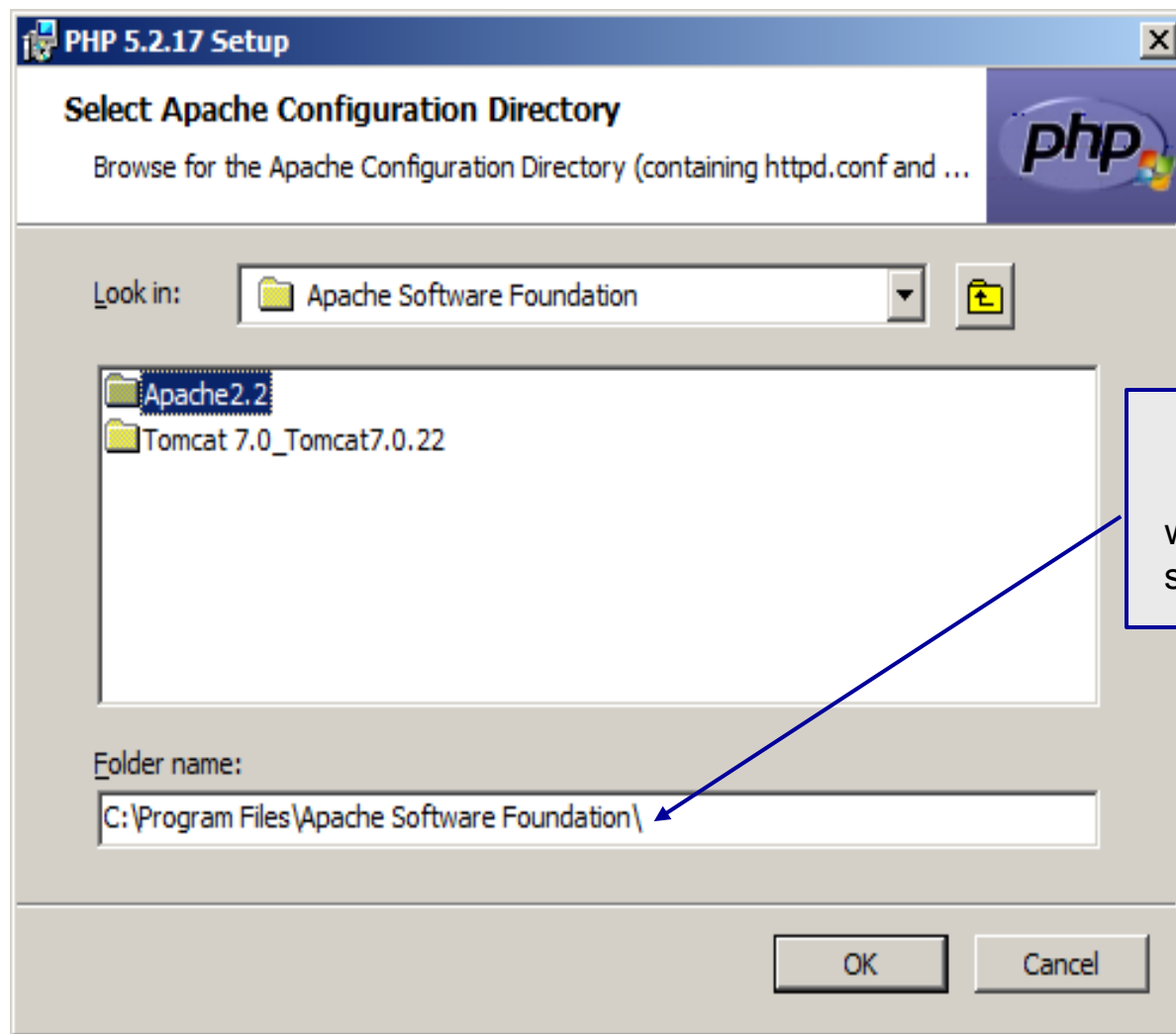
Installing And Configuring Apache (cont.)



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



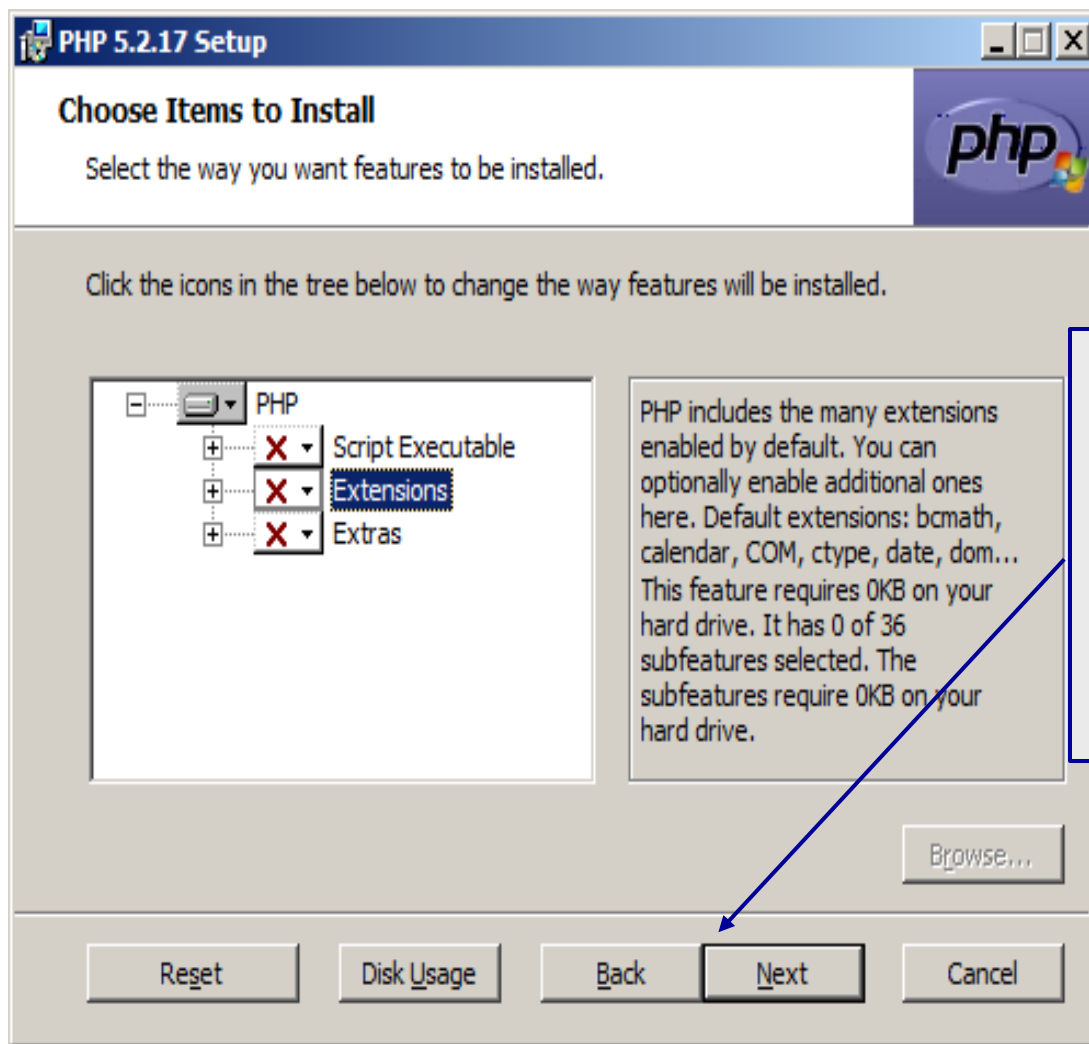
Installing And Configuring Apache (cont.)



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



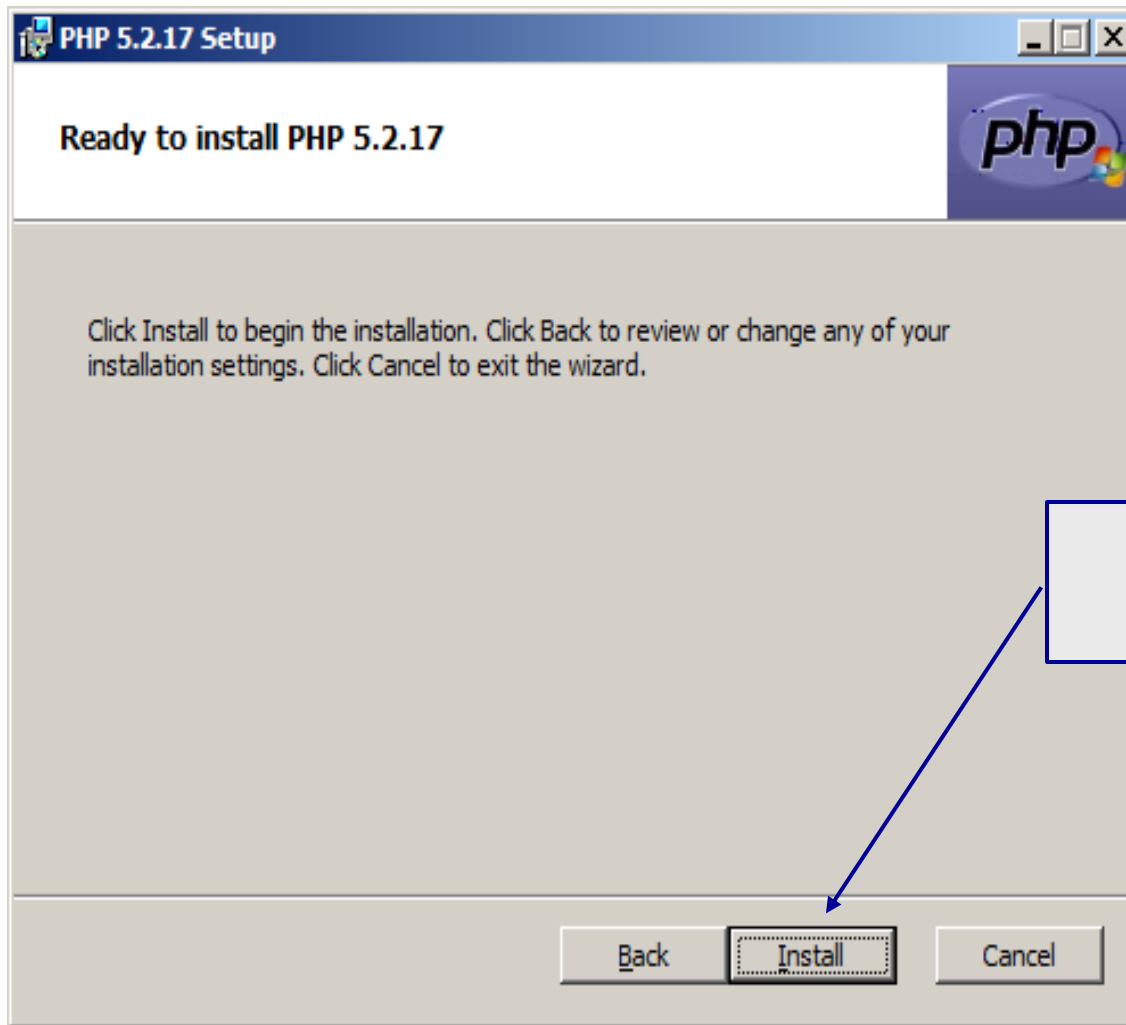
Installing And Configuring Apache (cont.)



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.)



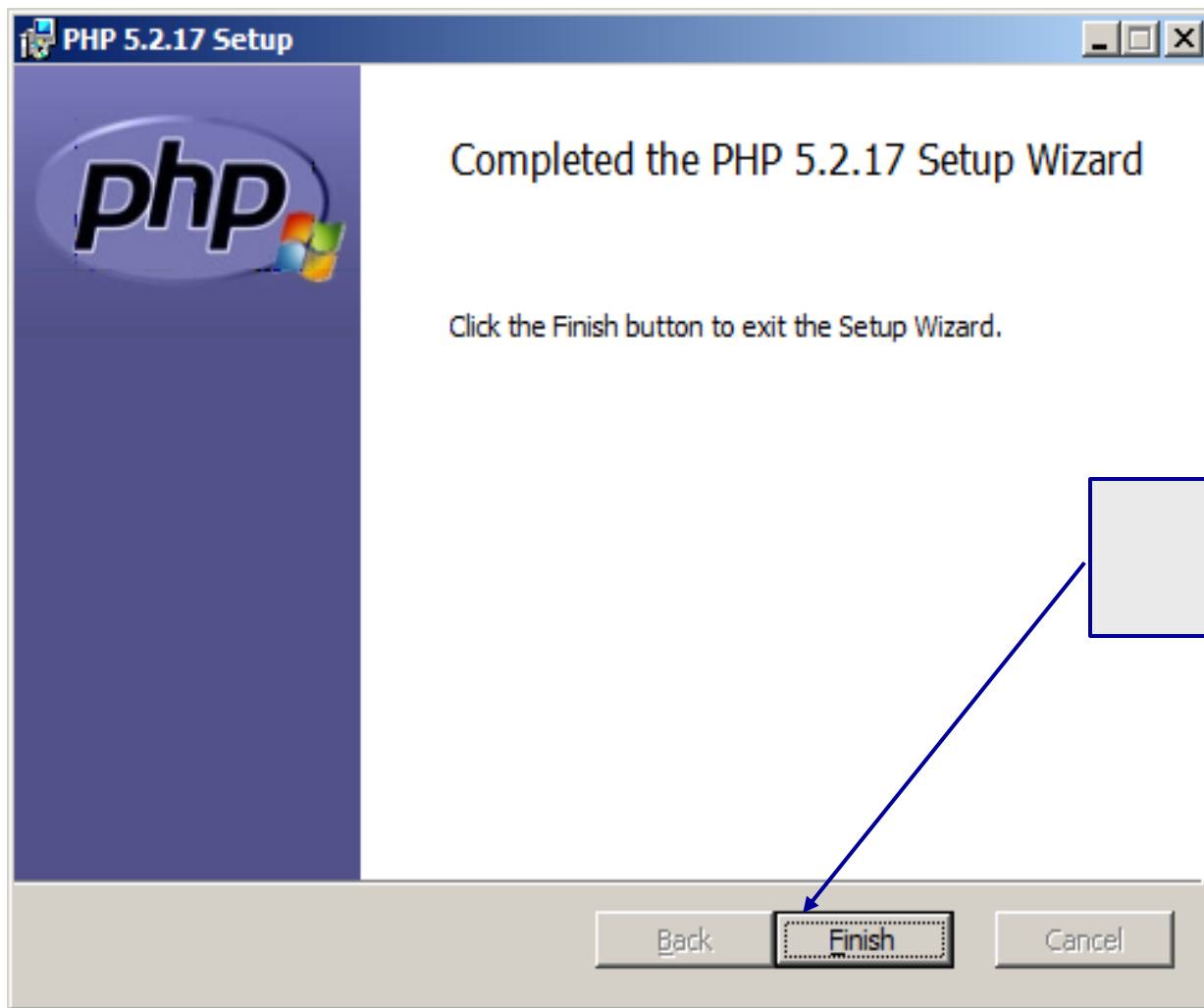
Installing And Configuring Apache (cont.)



Click Install



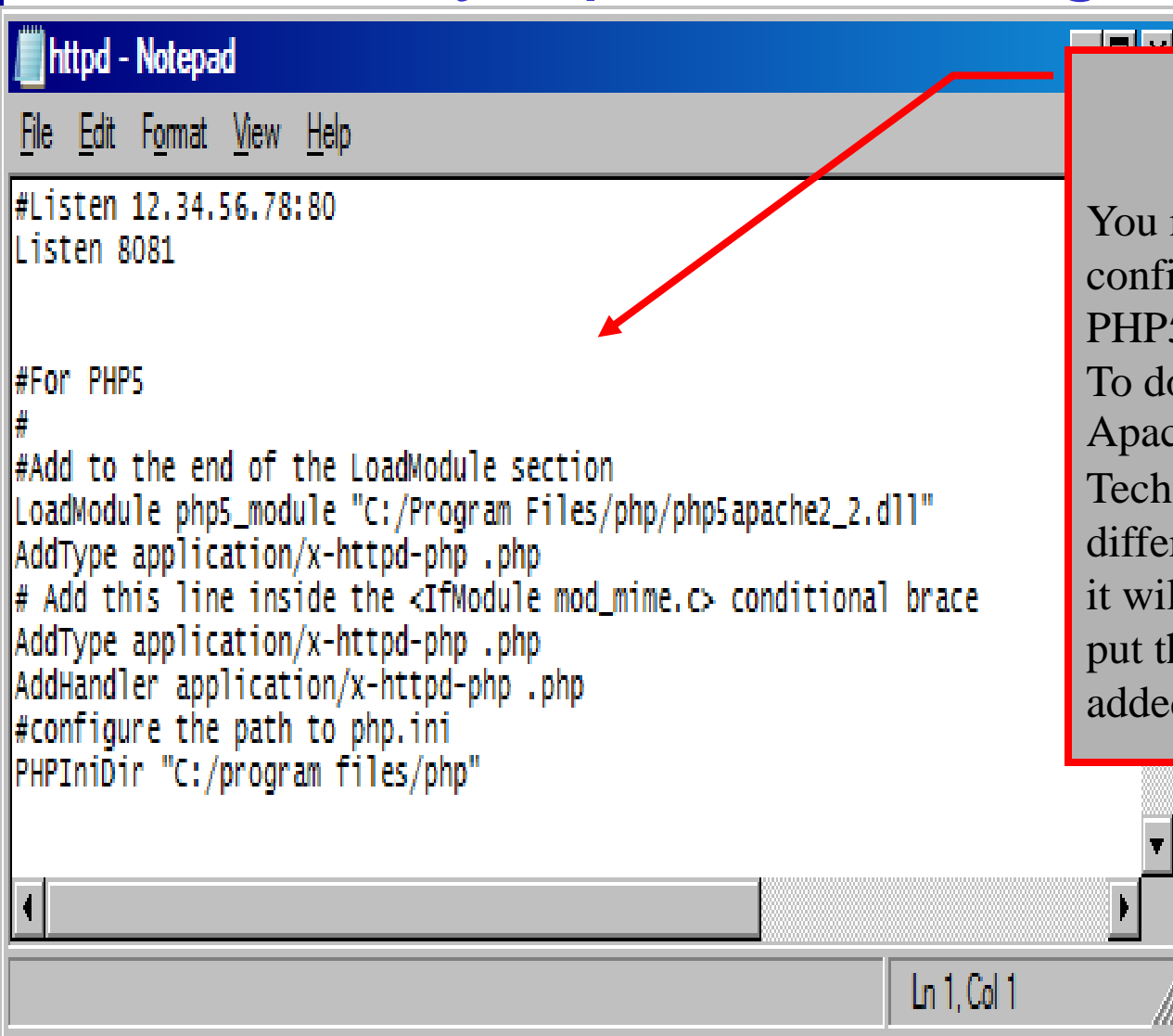
Installing And Configuring Apache (cont.)



Click Finish



Modify Apache Configuration File



```
httpd - Notepad
File Edit Format View Help
#Listen 12.34.56.78:80
Listen 8081

#For PHP5
#
#Add to the end of the LoadModule section
LoadModule php5_module "C:/Program Files/php/php5apache2_2.dll"
AddType application/x-httpd-php .php
# Add this line inside the <IfModule mod_mime.c> conditional brace
AddType application/x-httpd-php .php
AddHandler application/x-httpd-php .php
#configure the path to php.ini
PHPIniDir "C:/program files/php"
```

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

```
1 <html>
2 <head>
3     <title> Hello From PHP</title>
4 </head>
5 <body style = "font-family: arial, sans-serif;
6     background-color: #856363" background=image1.jpg>
7     <h1> Hello From PHP </h1>
8
9     <?php
10         print "Current Information";
11         phpinfo ();
12     ?>
13 </body>
14 </html>
```

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.



Mark - TestBed Server - VMware Player File Virtual Machine Help


Hello From PHP - Opera

Opera Hello From PHP

Web localhost:8081/CNT4714/hello.php Search with Google

Hello From PHP

Current Information

PHP Version 5.2.17 

System	Windows NT WIN-OGZ0HXCQGAX 6.0 build 6001
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\PHP\php.ini
Scan this dir for additional .ini files	(none)
additional .ini files parsed	(none)

The default directory for the php.ini file.

View (100%)

Start Apache on Windows... htdocs C:\Program Files\Ap... Hello From PHP - ... 2:55 PM

To direct input to this virtual machine, press Ctrl+G.

vmware



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 XHTML markup, as long as the code is enclosed in these scripting delimiters.
- Place all of your XHTML and PHP files inside the `htdocs` directory of the Apache server directory.



welcome.php

ArrayScript3.ps1 welcome.php

```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3 <!-- welcome.php -->
4 <!-- XHTML file containing a PHP script. -->
5 <?php
6     $name = "Mark"; //php declaration and assignment
7 ?>
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9 <!-- head section of document -->
10 <head>
11     <title>A Simple PHP Document</title>
12 </head>
13 <!-- body section of document -->
14 <body style = "font-size: 2em">
15     <hr>
16     <font color = blue><h1> Generating HTML From PHP </h1></font color>
17     <p>
18         <strong>
19             <!--print variable name's value in the message-->
20             <?php
21                 print("This is your first crack at running a PHP script...");
22                 print("<HR>");
23                 print("Welcome to the world of PHP technology, ");
24             ?>
```

PHP code declaring a variable.



welcome.php

ArrayScript3.ps1 welcome.php

```
13 <!-- body section of document -->
14 <body style = "font-size: 2em">
15 <hr>
16 <font color = blue><h1> Generating HTML From PHP </h1></font color>
17 <p>
18 <strong>
19 <!--print variable name's value in the message-->
20 <?php
21     print("This is your first crack at running a PHP script...");
22     print("<HR>");
23     print("Welcome to the world of PHP technology, ");
24 <?>
25 <font color = green>
26 <?php
27     print("$name");
28 <?>
29 </font color>
30 </strong>
31 </p>
32 </body>
33 </html> <!-- end XHTML document -->
34
35
36
```

PHP code

PHP code

A Simple PHP Document - Opera

Opera A Simple PHP Document

localhost:8081/CNT4714/welcome.php

welcome.php

Generating HTML From PHP

This is your first crack at running a PHP script...

Welcome to the world of PHP technology, **Mark**

Start Apache on Windows... CNT4714 C:\Program Files\Ap... A Simple PHP Doc... 3:03 PM

To direct input to this virtual machine, press Ctrl+G.

vmware



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 XHTML document on page 39 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
<code>\$_SERVER</code>	Data about the currently running server.
<code>\$_ENV</code>	Data about the client's environment.
<code>\$_GET</code>	Data posted to the server by the <code>get</code> method.
<code>\$_POST</code>	Data posted to the server by the <code>post</code> method.
<code>\$_COOKIE</code>	Data contained in cookies on the client's computer.
<code>\$GLOBALS</code>	Array containing all global variables.



server.php

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

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



Output from executing server.php

SERVER Variables Display - Opera

Opera SERVER Variables Display localhost:8081/CNT4714/server.php

```

HTTP_USER_AGENT Opera/9.80 (Windows NT 6.0; U; Edition United States Local; en) Presto/2.9.168 Version/11.51
HTTP_HOST localhost:8081
HTTP_ACCEPT text/html, application/xml;q=0.9, application/xhtml+xml, image/png, image/webp, image/jpeg, image/gif, image/x-xbitmap, */*;q=0.1
HTTP_ACCEPT_LANGUAGE en-US,en;q=0.9
HTTP_ACCEPT_ENCODING gzip, deflate
HTTP_CONNECTION Keep-Alive

PATH C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0\;C:\Program Files\MySQL\MySQL Server 5.5\bin

SystemRoot C:\Windows
COMSPEC C:\Windows\system32\cmd.exe
PATHEXT .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
WINDIR C:\Windows

SERVER_SIGNATURE
SERVER_SOFTWARE Apache/2.2.21 (Win32) PHP/5.2.17
SERVER_NAME localhost
SERVER_ADDR 127.0.0.1
SERVER_PORT 8081
REMOTE_ADDR 127.0.0.1
DOCUMENT_ROOT C:/Program Files/Apache Software Foundation/Apache2.2/htdocs
SERVER_ADMIN admin@WIN-OG70HXCQGAX localdomain
    
```

Start Apache on Windows ... CNT4714 *C:\Program Files\Ap... SERVER Variables ... 3:08 PM

To direct input to this virtual machine, press Ctrl+G. vmware

