

Install and Configure PHP: XAMPP, LAMP, IDEs

PHP, Web Server,
XAMP, LAMP, PHP IDEs

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PHP, WEB SERVERS, HTTP

What is PHP?

- PHP is a server-side scripting language
 - Designed for Web development
 - Mix HTML with PHP to create dynamic Web pages
 - Can be used as general purpose language, e.g. for desktop and command-line apps
 - Free and open-source: <http://php.net>
 - Huge popularity: 244 millions sites run PHP in 2013
 - **PHP: Hypertext Preprocessor** (a recursive acronym)

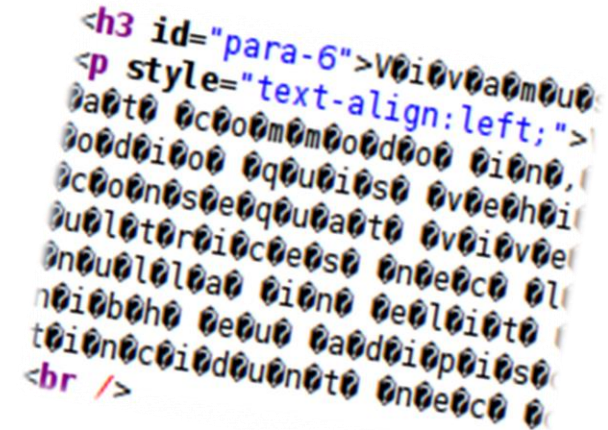
PHP – Example

```
<!DOCTYPE html>
<html>
<body>
  <h1>PHP Example</h1>
  <?php
    for ($i=0; $i<10; $i++) {
      echo $i . "<br>\n";
    }
  ?>
</body>
</html>
```



Cyrillic symbols in your webpage

- Content-type
 - Defines the information that the file holds
- Charset (if needed)
 - Defines the encoding of the file



```
<h3 id="para-6">V0i0v0a0m0u0  
<p style="text-align:left;">  
0a0t0 0c0o0m0m0o0d0o0 0i0n0,  
0o0d0i0o0 0q0u0i0s0 0v0e0h0i  
0c0o0n0s0e0q0u0a0t0 0v0i0v0e0  
0u0l0t0r0i0c0e0s0 0n0e0c0 0l  
0n0u0l0l0a0 0i0n0 0e0l0i0t0  
n0i0b0h0 0e0u0 0a0d0i0p0i0s0  
t0i0n0c0i0d0u0n0t0 0n0e0c0 0  
<br />
```

```
<?php header('Content-Type: text/html; charset=utf-8'); ?>
```

- File encoding
 - Always save your files with encoding UTF-8 to avoid issues

Web Servers

- A Web server is a software application that serves Web content over the HTTP protocol
 - Hosts Web sites, Web applications and REST services
 - Processes HTTP requests and returns static / dynamic Web content (HTML, CSS, images, JSON, JS)
 - Runs server side scripts like PHP, Python and Ruby
- Typically a client (Web browser) requests a Web page, the Web server builds the page and returns it



What is HTTP?

- Hyper Text Transfer Protocol (HTTP)
 - Client-server protocol for transferring Web resources
 - HTML files, CSS styles, images, scripts, JSON data, etc.
- Important properties of HTTP
 - Request-response model
 - Text-based format
 - Relies on a unique resource URLs
 - Stateless (cookies can overcome this)



HTTP – Example

- Sample HTTP request:

```
GET / HTTP/1.1  
Host: google.com  
User-Agent: Mozilla/5.0
```

The empty line
denotes the end of the
request header

- Sample HTTP response:

```
HTTP/1.1 200 OK  
Server: Microsoft-IIS/8.5  
Date: Thu, 17 Jul 2014 12:11:44 GMT  
Content-Length: 8560
```

```
<!DOCTYPE html>
```

```
...
```

The empty line
denotes the end of the
response header

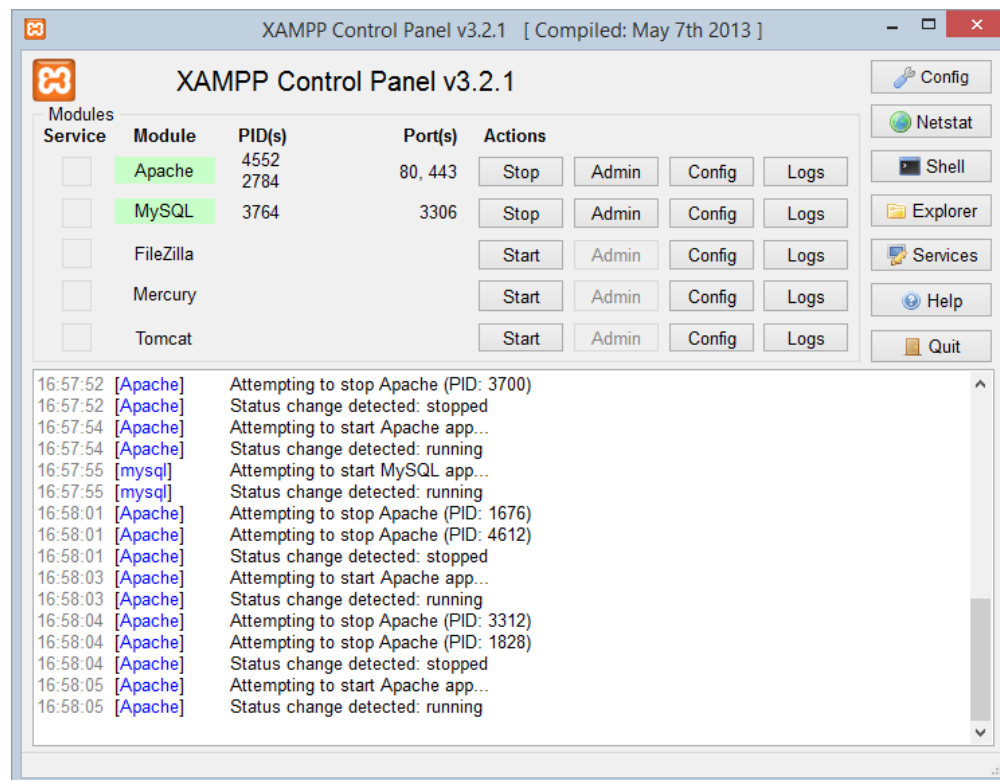
What is CGI?

- CGI == **C**ommon **G**ateway **I**nterface
 - An interface to connect Web servers with server-side scripts
 - E.g. connect PHP with Apache or Python with IIS
 - Goal: generate dynamic Web content
 - Web server passes the HTTP request and produces HTTP response
- Many technologies to connect Web servers with server scripts:
 - CGI, FastCGI, Apache modules, ISAPI (IIS), WSGI, Ruby Rack, ...
 - E.g. mod_php, mod_python, mod_wsgi, ...



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XAMPP



Install and Configure XAMPP

What is XAMPP?

XAMPP (/ˈzæmp/ or /ˈɛks.æmp/)

Free, open source cross-platform Web server solution stack

Runs in Windows, Linux and Mac OS X

Apache Web server + OpenSSL

MySQL database + phpMyAdmin

Scripting languages: PHP and Perl

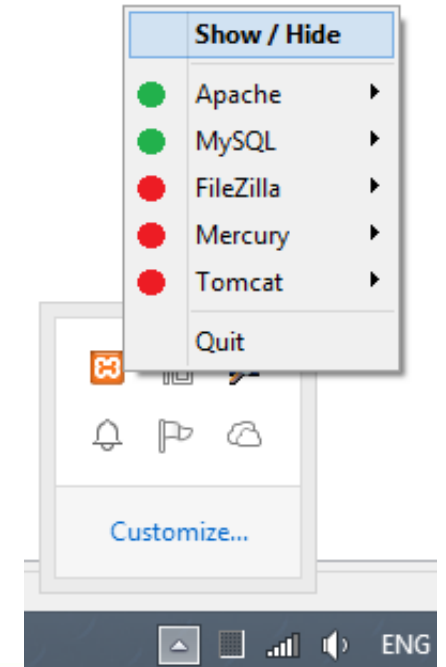
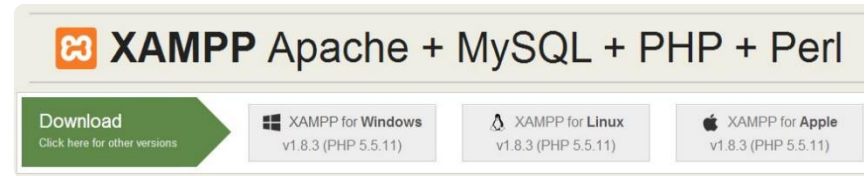
FileZilla FTP server

Mercury mail server (SMTP and POP3)

Provides an admin panel for simplified administration

Download, Install and Run XAMPP

- Downloading **XAMPP**:
 - <https://www.apachefriends.org/download.html>
- Installing **XAMPP** for Windows:
 - Download the installer (run it as administrator)
 - Usual Windows installation: Next -> Next -> Finish
- Running **XAMPP**
 - XAMPP start as a tray icon



Changing the Apache HTTP Port

- You may have IIS or other Web server running on your machine
 - This will take the standard HTTP and HTTPS ports: 80 and 443
- You may change the Apache HTTP listening port
 - From XAMPP Control Panel choose Apache -> Config
 - This will open `. \apache\conf\httpd.conf`
 - Search for “Listen 80”
 - Replace with “Listen 8080” (for example)
 - Access XAMPP from `http://localhost:8080`

XAMPP Control Panel

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XAMPP Control Panel v3.2.1 [Compiled: 2013]

XAMPP Control Panel v3.2.1

Service	Module	PID(s)	Port(s)	Actions
<input checked="" type="checkbox"/>	Apache	9844 7732	80, 443	Stop Admin Config Logs
<input checked="" type="checkbox"/>	MySQL	6584	3306	Stop Admin Config Logs
<input checked="" type="checkbox"/>	FileZilla	7340	21, 14147	Stop Admin Config Logs
<input type="checkbox"/>	Mercury			Start Admin Config Logs
<input type="checkbox"/>	Tomcat			Start Admin Config Logs

23:59:43 [main] Initializing Modules
23:59:44 [main] Starting Check-Timer
23:59:44 [main] Control Panel Ready
23:59:47 [Apache] Attempting to start Apache app...
23:59:48 [Apache] Status change detected: running
23:59:48 [mysql] Attempting to start MySQL app...
23:59:50 [mysql] Status change detected: running
23:59:55 [filezilla] Attempting to start FileZilla app...
23:59:56 [filezilla] Status change detected: running

Config
Netstat
Shell
Explorer
Services
Help
Quit

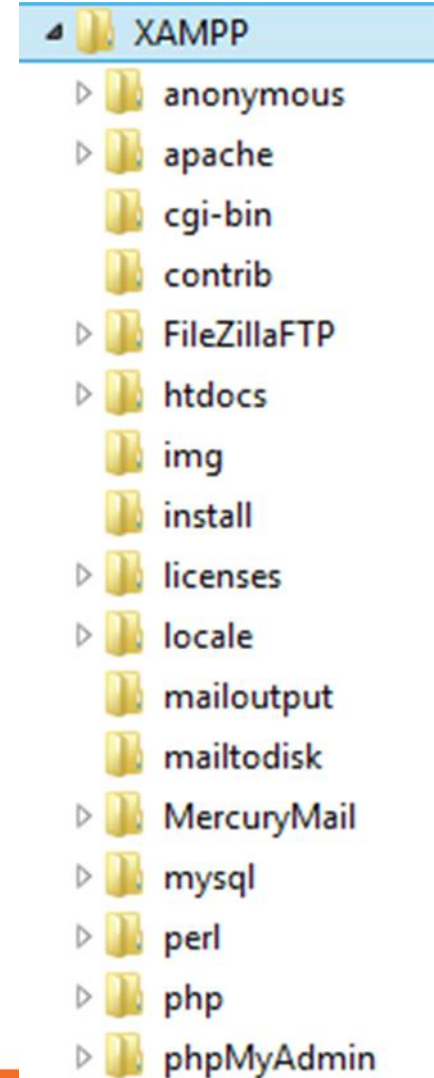
Used TCP ports

Windows process IDs

System messages (logs)

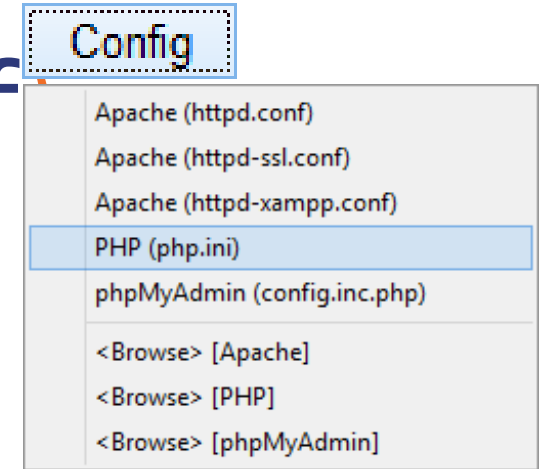
XAMPP Directories

- Location of public HTML files (document root)
 - `./htdocs`
- Location of Apache web server
 - `./apache`
- Location of PHP
 - `./php`
- Location of MySQL database
 - `./mysql`



XAMPP Configuration Files

- Apache configuration file (**httpd.conf**)
 - **.\apache\conf\httpd.conf**
- PHP configuration file (**php.ini**):
 - **.\apache\bin\php.ini**
- MySQL configuration file (**my.cnf**):
 - **.\mysql\bin\my.cnf**





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PHP SETTINGS

The php.ini File

- PHP settings (called directives) are stored in the `php.ini` file
 - A set of `name = value` statements
 - If there is no value, the directive is left as `name =`
 - **Comments start with a semicolon ;**
 - The location of the file is different across operating systems and versions
 - You can check which `php.ini` file is loaded with `phpinfo()`
- **PHP supports add-ons**
 - **Most add-ons read their settings from the same file**

Sample php.ini Settings

Directive	Default	Description
<code>short_open_tag</code>	On	Whether <? and ?> tags should be allowed
<code>post_max_size</code>	"8M"	The maximum size of post data allowed
<code>default_charset</code>	"UTF-8"	The default charset of the HTTP response
<code>upload_max_filesize</code>	"2M"	The maximum size of an uploaded file
<code>max_execution_time</code>	30	Execution time limit of a script in seconds
<code>user_dir</code>	NULL	The user's home directory for PHP files

Changing Settings at Runtime

- Get the runtime value of a **php.ini** variable:

```
ini_get("upload_max_filesize");
```

- Change the value of a **php.ini** variable at runtime:

```
ini_set("include_path", "c:/php/PEAR");
```

- Display the current values of the PHP settings:

```
phpinfo();
```

Enable XDebug in php.ini

- By default PHP does not support debugging until PHP 5.6
- You may enable the XDebug Zend extension in the **php.ini**

```
[XDebug]
zend_extension = "C:\XAMPP\php\ext\php_xdebug.dll"

xdebug.remote_enable = 1
xdebug.remote_handler = dbgp
xdebug.remote_host = localhost
xdebug.remote_port = 9000
xdebug.profiler_enable = 1
xdebug.profiler_output_dir= "D:\Temp"
```



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APACHE SETTINGS

The `httpd.conf` file

- Apache settings are defined in the **httpd.conf** file
 - Location and name may differ across platforms and Apache versions
 - Older version read from multiple files
 - The site-specific settings and module-specific settings are in separate files
 - Follows a syntax close to XML
 - Name-value pairs sometimes in tags

Sample httpd.conf Settings

Directive	Default	Description
Listen	80	Sets the port to listen for connections; can be repeated with different ports; usually specified in ports.conf file
Timeout	300	The number of seconds before the server sends timeout to a dead connection
KeepAlive	On	Turns persistent connection on or off
ErrorLog	logs/error_log	Sets the Apache log file; can be specified separately for each site
DirectoryIndex	index.html	Sets the default files in a directory (when the user requests the directory)

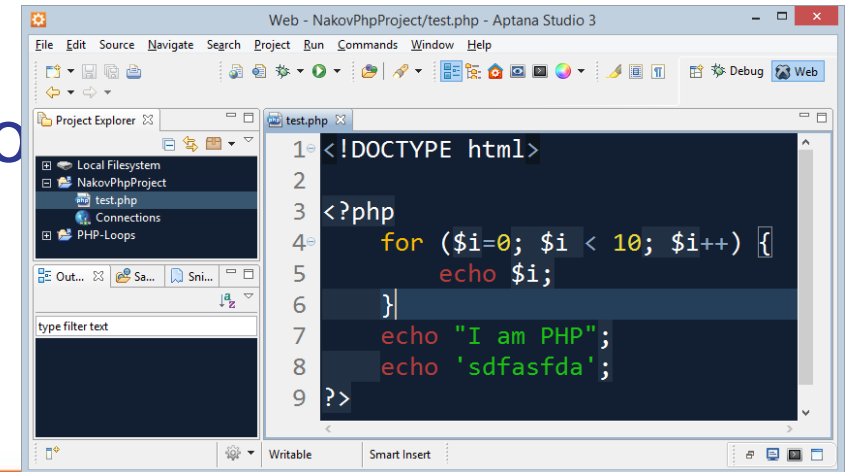


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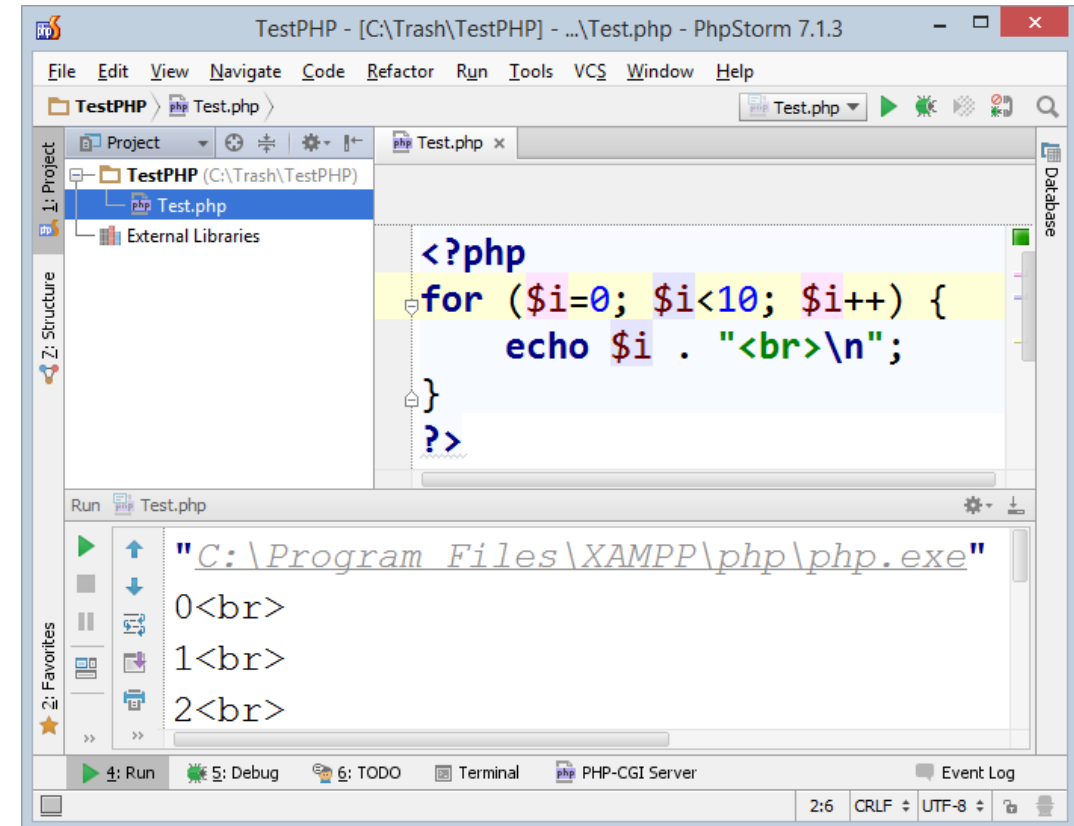
PHP IDES

Aptana, PHP Storm, Netbeans

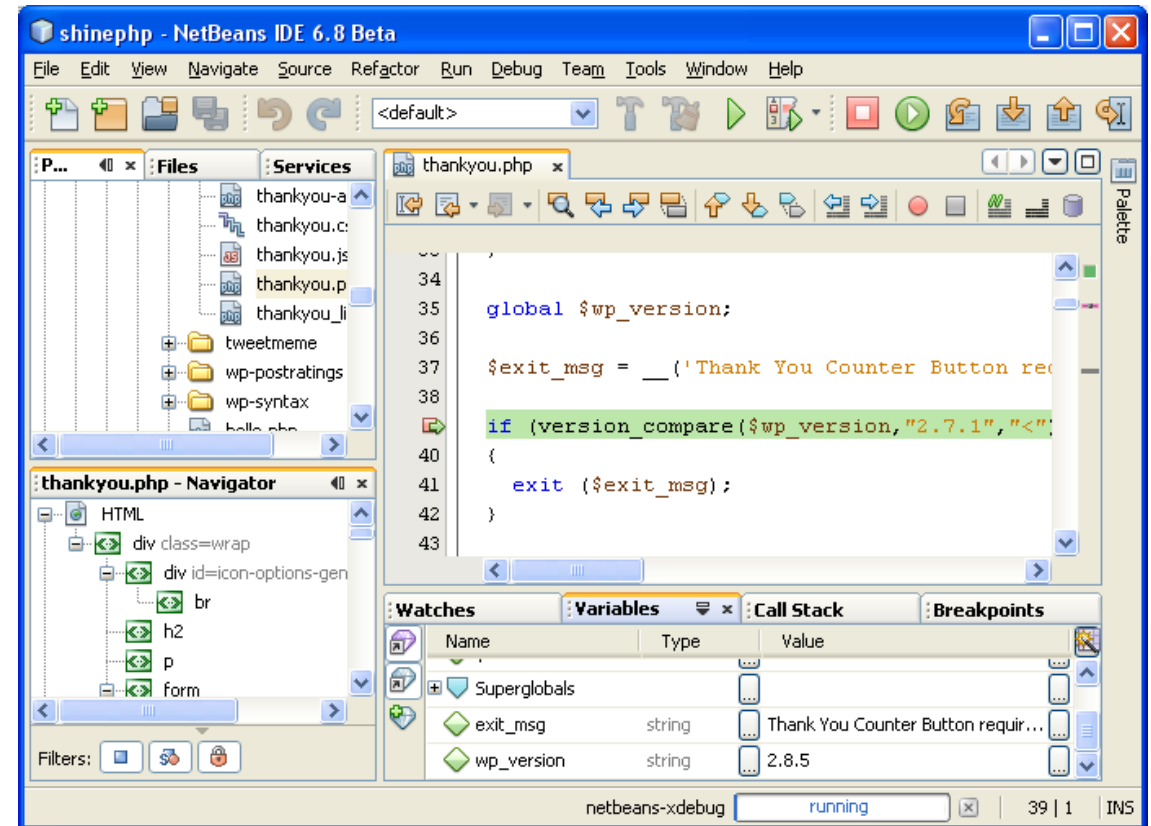
- The Eclipse platform provides solid PHP development support
 - PDT – PHP Development Tools
 - Write PHP code, Web server integration, debugging (XDebug)
 - Free, open-source: <http://www.eclipse.org/pdt/>
- Aptana Studio
 - Eclipse-based IDE for PHP, Ruby, Python
 - Supports also HTML, CSS, JavaScript
 - Open-source: <http://www.aptana.com>



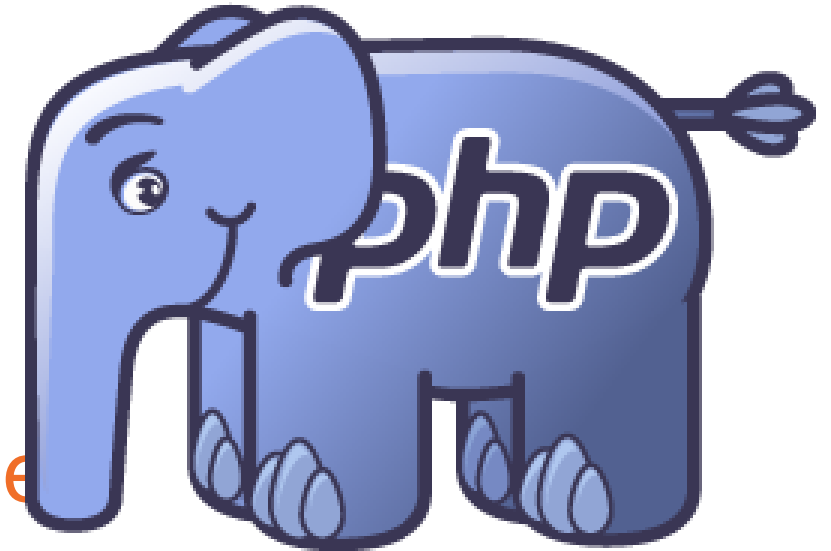
- PHP Storm
 - Powerful PHP IDE
 - By JetBrains, paid product
 - Built-in Web server for simplified configuration
 - Easy to install and configure
 - <http://jetbrains.com/phpstorm/>



- The NetBeans IDE fully supports PHP
 - Free, open-source IDE
 - PHP code editor
 - Debugger (through XDebug)
 - Server integration
 - Frameworks support:
 - Symfony, Zend



- General information about PHP
 - <http://php.net/>
 - Partly in Bulgarian
- Good practices when writing PHP code
 - <http://www.phptherightway.com>
 - <https://phpbestpractices.org>
 - <http://www.php-fig.org/>



Summary

- PHP == server-side Web scripting language
- Web Servers serve web content through HTTP
 - Run PHP through CGI / mod_php / ISAPI
- XAMPP == Apache + PHP + MySQL + Perl
 - Recommended for Windows users
- LAMP == Linux + Apache + MySQL + PHP
- php.ini holds the PHP interpreter settings
- PHP IDEs: Aptana, PHP Storm, Netbeans